

Exhibit 12 Part 13

Part 4 of Attachment L to the Allocation Recommendation Report (ARR2295-ARR2391)

United States' Motion to Enter Consent Decree,
United States v. Alden Leeds, Inc. et al., Civil Action No. 22-7326 (D.N.J.)

Allocation Facility Cmass Calculation

Drum Service of Newark Inc.	120 Lister Avenue	Newark	NJ	07105
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Constituent Of Concern (COC)	Overland, Fate & Transport C%	Dmass Overland, Fate & Transport	PrePVSC C%	Dmass PrePVSC	PVSC C%	Dmass PVSC	Direct Discharge C%	Dmass Direct Discharge	COC Total Pathway Cmass	COC A%	COC Historic CMass
Copper	100.00%	-	100.00%	-	0.00%	170.10	100.00%	-	0	1.018817E-2	0
Lead	100.00%	-	100.00%	-	0.00%	38.54	100.00%	-	0	1.018817E-2	0
Mercury	100.00%	-	100.00%	-	0.00%	0.43	100.00%	-	0	1.018817E-2	0
HPAHs	100.00%	-	100.00%	-	0.00%	136.76	100.00%	-	0	1.018817E-2	0
LPAHs	100.00%	-	100.00%	-	0.00%	91.17	100.00%	-	0	1.018817E-2	0
PCBs	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0
DDx	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0
Dieldrin	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0
Dioxins_Furans	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0

Drum Service of Newark Inc.	120 Lister Avenue	Newark	NJ	07105
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Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	COC Historic CMass	COC Relative Contribution	COC Base Score
Copper	0.69	2,100,000.00	0	0	0
Lead	0.01	3,200,000.00	0	0	0
Mercury	0.95	42,000.00	0	0	0
HPAHs	0.05	240,000.00	0	0	0
LPAHs	0.01	170,000.00	0	0	0
PCBs	12.87	26,000.00	0	0	0
DDx	1.37	27,000.00	0	0	0
Dieldrin	0.13	390.00	0	0	0
Dioxins_Furans	83.92	38.00	0	0	0

Allocation Facility COC Base Scores - Alternative Calulcation

Drum Service of Newark Inc.	120 Lister Avenue	Newark	NJ	07105
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Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	Total Cmass (TCmass)	Total OS COC ACmass	COC %	COC Historic CMass	Facility OS COC Cmass	COC Relative Responsibility	COC Base Score
Copper	0.69	2,100,000.00	276,960.25	2,097,178.28	0	0	0	0	0
Lead	0.01	3,200,000.00	288,577.67	3,197,059.92	0	0	0	0	0
Mercury	0.95	42,000.00	4,322.53	41,955.96	0	0	0	0	0
HPAHs	0.05	240,000.00	4,346,388.50	195,718.24	0	0	0	0	0
LPAHs	0.01	170,000.00	3,012,835.14	139,304.72	0	0	0	0	0
PCBs	12.87	26,000.00	20,066.54	25,795.56	0	0	0	0	0
DDx	1.37	27,000.00	2,516.93	26,974.36	0	0	0	0	0
Dieldrin	0.13	390.00	1.27	389.99	0	0	0	0	0
Dioxins_Furans	83.92	38.00	3,729.82	0.00	0	0	0	0	0

Facility Bypass Information

Drum Service of Newark Inc.	120 Lister Avenue	Newark	NJ	07105
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Item	Bypass Name	Bypass Type	Time %	Flow %	Bypass Notes
1	Newark Bay	Bypass	0.00%	0.00%	Did not discharge waste into the Passaic river

Discharge Calcs	POTW Discharge Information	COMMENTS/NOTES
	gal discharged per day/week/month	PVSC Permit
	# hours/per day discharged	No COC or Discharge Information
	#days/week discharged	Drum Refurbishing, so consider similar to Truck Washwater
	#weeks/yr discharged	
3,225,100	calc gal/yr discharge	
1997	Yr Ops started	
2004	Yr Ops ceased	
7	calc #yrs facility operated	
Copper (Cu)		
7	#yrs facility discharged	Estimate based on Quality Carriers
1.99	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
170.10	calc kg COC discharged	
Lead (Pb)		
7	#yrs facility discharged	Estimate based on Quality Carriers
0.45	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
38.54	calc kg COC discharged	
Mercury (Hg)		
7	#yrs facility discharged	Estimate based on Quality Carriers
0.0050	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
0.43	calc kg COC discharged	
HPAHs		
7	#yrs facility discharged	Estimate based on Quality Carriers
1,067.00	calc mg/L O&G	
2.5%	% TOC that is considered O&G	
10%	% O&G that is considered PAHs	
60%	% PAHs considered as HPAHs	
1.60	calc mg/L HPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
136.76	calc kg COC discharged	
LPAHs		
7	#yrs facility discharged	Estimate based on Quality Carriers
1,067.00	calc mg/L O&G	
2.5%	% TOC that is considered O&G	
10%	% O&G that is considered PAHs	
40%	% PAHs considered as LPAHs	
1	calc mg/L LPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
91.17	calc kg COC discharged	
PCBs		
-19	#yrs facility discharged within PCBs Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
DDx		
-24	#yrs facility discharged within DDx Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dieldrin		
-9	#yrs facility discharged within Dieldrin Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxins/Furans		
7	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4-D		
8	#yrs facility discharged within 2,4-D Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,5-T		
-11	#yrs facility discharged within 2,4,5-T Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,6-TCP		
-21	#yrs facility discharged within 2,4,6-TCP Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Summary DMassCOC for POTW:		
170.10	kg Copper	
38.54	kg Lead	
0.43	kg Mercury	
136.76	kg HPAHs	
91.17	kg LPAHs	
-	kg PCBs	
-	kg DDx	

-	kg Dieldrin	
-	kg Dioxins/Furans	

Drum Service of Newark Inc.

120 Lister Avenue		Newark	NJ	07105			
Facility BS	CUF	CUF_Category	CUF_NOTES		COF	COF_NOTES	Facillty Adjusted BS
0	5.0%	Occasional Noncompliance	Drum Services is listed as a company that was issued fines from PVSC during the August 1, 1997 to July 31, 1998; August 1, 1998 to July 31, 1999 and the August 1, 2000 to July 31, 2001 time periods (PAS-00017752; PAS-00021364). No additional information was provided in the files reviewed.		20.0%	20% Failed to participate in conduct of allocation as offered by EPA	0

AP_ABS	0
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Drum Service of Newark Inc.

120 Lister Avenue	Newark	NJ	07105
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Facility BS	CUF	CUF_Category	CUF_NOTES	COF	COF_NOTES	Facillty Adjusted BS
0	5.0%	Occasional Noncompliance	Drum Services is listed as a company that was issued fines from PVSC during the August 1, 1997 to July 31, 1998; August 1, 1998 to July 31, 1999 and the August 1, 2000 to July 31, 2001 time periods (PAS-00017752; PAS-00021364). No additional information was provided in the files reviewed.	20.0%	20% Failed to participate in conduct of allocation as offered by EPA	0

AP_ABS	0
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Allocation Facility Cmass Calculation

Elan Chemical Co., Inc.	268 Doremus Avenue	Newark	NJ	07105
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Constituent Of Concern (COC)	Overland, Fate & Transport C%	Dmass Overland, Fate & Transport	PrePVSC C%	Dmass PrePVSC	PVSC C%	Dmass PVSC	Direct Discharge C%	Dmass Direct Discharge	COC Total Pathway Cmass	COC A%	COC Historic CMass
Copper	100.00%	-	100.00%	-	0.00%	2,284.50	100.00%	-	0	1.018817E-2	0
Lead	100.00%	-	100.00%	-	0.00%	340.83	100.00%	-	0	1.018817E-2	0
Mercury	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0
HPAHs	100.00%	6.59	100.00%	-	0.00%	736.93	100.00%	-	6.59	1.018817E-2	0.07
LPAHs	100.00%	1.39	100.00%	-	0.00%	491.29	100.00%	-	1.39	1.018817E-2	0.01
PCBs	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0
DDx	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0
Dieldrin	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0
Dioxins_Furans	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0

Elan Chemical Co., Inc.

268 Doremus Avenue

Newark

NJ

07105

Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	COC Historic CMass	COC Relative Contribution	COC Base Score
Copper	0.69	2,100,000.00	0	0	0
Lead	0.01	3,200,000.00	0	0	0
Mercury	0.95	42,000.00	0	0	0
HPAHs	0.05	240,000.00	0.07	2.798E-7	1.399E-8
LPAHs	0.01	170,000.00	0.01	8.330E-8	8.330E-10
PCBs	12.87	26,000.00	0	0	0
DDx	1.37	27,000.00	0	0	0
Dieldrin	0.13	390.00	0	0	0
Dioxins_Furans	83.92	38.00	0	0	0

Allocation Facility COC Base Scores - Alternative Calulcation

Elan Chemical Co., Inc.	268 Doremus Avenue	Newark	NJ	07105
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Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	Total Cmass (TCmass)	Total OS COC ACmass	COC %	COC Historic CMass	Facility OS COC Cmass	COC Relative Responsibility	COC Base Score
Copper	0.69	2,100,000.00	276,960.25	2,097,178.28	0	0	0	0	0
Lead	0.01	3,200,000.00	288,577.67	3,197,059.92	0	0	0	0	0
Mercury	0.95	42,000.00	4,322.53	41,955.96	0	0	0	0	0
HPAHs	0.05	240,000.00	4,346,388.50	195,718.24	1.516E-6	0.07	0.3	1.516E-6	7.581E-8
LPAHs	0.01	170,000.00	3,012,835.14	139,304.72	4.614E-7	0.01	0.06	4.614E-7	4.614E-9
PCBs	12.87	26,000.00	20,066.54	25,795.56	0	0	0	0	0
DDx	1.37	27,000.00	2,516.93	26,974.36	0	0	0	0	0
Dieldrin	0.13	390.00	1.27	389.99	0	0	0	0	0
Dioxins_Furans	83.92	38.00	3,729.82	0.00	0	0	0	0	0

Facility Bypass Information

Elan Chemical Co., Inc.	268 Doremus Avenue	Newark	NJ	07105
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Item	Bypass Name	Bypass Type	Time %	Flow %	Bypass Notes
1	Newark Bay	Bypass	0.00%	0.00%	Did not discharge waste into the Passaic river

Discharge Calcs	POTW Discharge Information	COMMENTS/NOTES
72,562	gal discharged per day PAS00014428, PAS00014536, PAS00061069, PAS00059971	1975 sampling for PVSC Sewer App Permit, 1979 PVSC Sewer App Permit, Phase I Environmental Assessment, 1995 Permit
24	# hours/per day discharged	
5	#days/week discharged	Runoff from facility is treated in onsite effluent sump, which is part of onsite wastewater system.
52	#weeks/yr discharged	NJPDES permit is for operation of onsite treatment system.
18,866,156	calc gal/yr discharge	All drains and outside storm water connect to effluent sump pit to PVSC.
1977	Yr Ops started	
2020	Yr Ops ceased	
43	calc #yrs facility operated	
Copper (Cu)		
43	#yrs facility discharged	
0.744	calc mg/L COC discharged PAS00014428, PAS00014536	1975 sampling for PVSC Sewer App Permit - - permit discharge limits not used
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
2,284.50	calc kg COC discharged	
Lead (Pb)		
43.000	#yrs facility discharged	
0.111	calc mg/L COC discharged PAS00014428, PAS00014536	1975 sampling for PVSC Sewer App Permit - - permit discharge limits not used
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
341	calc kg COC discharged	
Mercury (Hg)		
43	#yrs facility discharged	
-	calc mg/L COC discharged PAS00014428	1975 sampling for PVSC Sewer App Permit - - permit discharge limits not used
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
HPAHs		
43	#yrs facility discharged	
4.00	calc mg/L COC discharged PAS00014428	calcs used to convert mg/kg O&G to HPAHs; remove if not needed
10%	% O&G that is considered PAHs	1975 sampling for PVSC Sewer App Permit - - permit discharge limits not used
60%	% PAHs considered as HPAHs	
0.24	calc mg/L HPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
736.93	calc kg COC discharged	
LPAHs		
43	#yrs facility discharged	
4.00	calc mg/L COC discharged PAS00014428	calcs used to convert mg/kg O&G to LPAHs; remove if not needed
10%	% O&G that is considered PAHs	1975 sampling for PVSC Sewer App Permit - - permit discharge limits not used
40%	% PAHs considered as LPAHs	
0.16	calc mg/L LPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
491.29	calc kg COC discharged	
PCBs		
1	#yrs facility discharged within PCBs Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
DDx		
-4	#yrs facility discharged within DDx Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dieldrin		
11	#yrs facility discharged within Dieldrin Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxins/Furans		
43	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4-D		
44	#yrs facility discharged within 2,4-D Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,5-T		
9	#yrs facility discharged within 2,4,5-T Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,6-TCP		
-1	#yrs facility discharged within 2,4,6-TCP Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Summary DMassCOC for POTW:		
2,284.50	kg Copper	
340.83	kg Lead	
-	kg Mercury	
736.93	kg HPAHs	
491.29	kg LPAHs	
-	kg PCBs	
-	kg DDx	
-	kg Dieldrin	

-	kg Dioxins/Furans	

Discharge Calcs	Direct Discharge Information	ASSUMPTIONS, REFERENCES	COMMENTS/NOTES
	4.08 FEET/YEAR AVERAGE PRECIPITATION	Long term average annual precipitation includes floods and hurricane events occurring over time.	Data from Rutgers University.
	4 ACRES - TOTAL SITE AREA (acres)	FDR p 1	
	1 ACRES - AFFECTED AREA	Approximately 25% buildings in 1977 aerial photo here https://njdep.maps.arcgis.com/apps/webappviewer/index.html	
	4,046.86 METERS ² /ACRE		
	4,047 METERS ² (AFFECTED AREA)		
	0.0001 METERS/YEAR (ERODED SOIL THICKNESS)	For this estimate, used a surface soil erosion rate of 0.1 mm/year, or 0.004 inches/year.	
	0 METERS ³ /YEAR (ERODED SOIL VOLUME)	VOLUME/YEAR DISCHARGED TO DITCHES	
	1977 Year site operations began	Elan-Conn acquired the site in 1968 but current Elan Chemical Co acquired it in 1977 (FDR p 1)	
	2020 Site operations continue to the present (FDR p 1) but no soil data for other soil areas		
	43 NUMBER YEARS DISCHARGE		
	17 METERS ³ (TOTAL SOIL VOLUME DISCHARGED OVER TIME)		
	1,915 KG/M ² SOIL DENSITY	Fill reported as fine to medium and fine to coarse samds with gravel and residue consisting of crushed brick and cinders (PAS-00060192). Bulk density range 1346 KG/M ³ to 2483 KG/M ³ , so use average. (http://structx.com/Soil_Properties_002.html)	
	33,315 KILOGRAMS (TOTAL SOIL DISCHARGED OVER TIME)		
Copper (Cu)		Site is located on regional historic fill (FDR p 6) Copper chromite and copper powder inventoried on site since 1977 (FDR p 5; PAS-00059885 p 89 AKA PAS-00059973). Copper shot and copper chromite was used from approx 2002 to 2006 (FDR p 5)	
	43 YEARS DISCHARGED		
	0 MG/KG (MAX CONCENTRATION)		
	0.000001 kg per mg (Merck Index)		
	0 KILOGRAMS DISCHARGED		
Lead (Pb)		No info on lead use (FDR p 6)	
	43 YEARS DISCHARGED		
	0 MG/KG (MAX CONCENTRATION)		
	0.000001 kg per mg (Merck Index)		
	0 KILOGRAMS DISCHARGED		
Mercury (Hg)		No info on mercury use (FDR p 6)	
	43 YEARS DISCHARGED		
	0 MG/KG (MAX CONCENTRATION)		
	0.000001 kg per mg (Merck Index)		
	0 KILOGRAMS DISCHARGED		
PAHs (listed in Benzo(a)pyrene Equivalent conversion table)			
	43 YEARS DISCHARGED		
	25.7 MG/KG (TOTAL PAH AVERAGE CONCENTRATION)		
	0.000001 kg per mg (Merck Index)		
	1 KILOGRAMS DISCHARGED		
PAHs (others detected)		Data below the Benzo(a)pyrene Equivalent Table	
	43 YEARS DISCHARGED		
	38 MG/KG (TOTAL PAH MAX CONCENTRATION)		
	0.000001 kg per mg (Merck Index)		
	1 KILOGRAMS DISCHARGED		

	Contaminant	Concentration (mg/kg)	Toxic Equivalency Factor	Benzo(a)pyrene Equivalents
Sample S4-A (0-0.5 ft bgs). S4-A is from outside the drum storage area and therefore represents background contamination level (PAS-00060200)	Benzo(a)pyrene	21.600	1.0	21.6000
	Benzo(a)anthracene	17.100	0.1	1.7100
	Benzo(b)fluoranthene	21.900	0.1	2.1900
	Benzo(k)fluoranthene	17.800	0.01	0.1780
	Chrysene	16.400	0.001	0.0164
	Dibenz(a,h)anthracene	0.000	1.0	0.0000
	Indeno(1,2,3-cd)pyrene	0.000	0.1	0.0000
DE Residential = 0.1 mg/kg; DE Industrial = 0.7 mg/kg Total Benzo(a)pyrene Equivalents =				25.7

PCBs	43 YEARS DISCHARGED
	MG/KG AVG OF REPORTED CONCENTRATIONS)
0.000001	kg per mg (Merck Index)
0	KILOGRAMS DISCHARGED
DDx	43 YEARS DISCHARGED within DDx Timeline
	MG/KG (MAX CONCENTRATION)
3.785	L per gallon (Merck Index)
0.000001	kg per mg (Merck Index)
0	KILOGRAMS DISCHARGED
Dieldrin	43 YEARS DISCHARGED within Dieldrin Timeline
	MG/KG (MAX CONCENTRATION)
3.785	L per gallon (Merck Index)
0.000001	kg per mg (Merck Index)
0	KILOGRAMS DISCHARGED
Dioxins/Furans	NONE FOUND IN AVAILABLE DOCUMENTATION
	43 YEARS DISCHARGED
	MG/KG (MAX CONCENTRATION)
0.000001	kg per mg (Merck Index)
0	calc kg COC discharged
SUMMARY CMASS ESTIMATES:	
	0.00 kg Copper
	0.00 kg Lead
	0.00 kg Mercury
	0.86 kg PAHs (Benzo(a)pyrene Equivalent)
	1.27 kg PAHs (Other)
	0.00 kg PCBs
	0.00 kg DDx
	0.00 kg Dieldrin
	0.00 kg Dioxins/Furans
2.12 MASS (KG) DISCHARGED FROM SURFACE SOIL	

Sample S4-A (0-0.5 ft bgs) (PAS-00060200)	
Anthracene	7.09
Acenaphthene	2.56
Acenaphthylene	0
Fluorene	0
Naphthalene	0
Phenanthrene	28.4
2-Methylnaphthalene	0
SUM	38.05

Discharge Calcs	Direct Discharge Information	ASSUMPTIONS, REFERENCES	COMMENTS/NOTES
	4.08 FEET/YEAR AVERAGE PRECIPITATION	Long term average annual precipitation includes floods and hurricane events occurring over time.	Data from Rutgers University.
	4 ACRES - TOTAL SITE AREA (acres)	FDR p 1	
	0.367 ACRES - AFFECTED AREA	Unpaved, gravel drum storage area is approx 100' x 160' (Fig 3, PAP-00115573). 16000 sf = 0.36730946 acre	
	4,046.86 METERS ² /ACRE		
	1,486 METERS ² (AFFECTED AREA)		
	0.0001 METERS/YEAR (ERODED SOIL THICKNESS)	For this estimate, used a surface soil erosion rate of 0.1 mm/year, or 0.004 inches/year.	
	0 METERS ³ /YEAR (ERODED SOIL VOLUME)	VOLUME/YEAR DISCHARGED TO DITCHES	
	1977 Year site operations began	Elan-Conn acquired the site in 1968 but the current Elan Chemical Co acquired it in 1977 (FDR p 1)	
	1992 Year drum storage area was capped (FDR p 12; PAP-00115565)		
	15 NUMBER YEARS DISCHARGE		
	2 METERS ³ (TOTAL SOIL VOLUME DISCHARGED OVER TIME)		
	1,915 KG/M ³ SOIL DENSITY	Fill reported as fine to medium and fine to coarse samds with gravel and residue consisting of crushed brick and cinders (PAS-00060192). Bulk density range 1346 KG/M ³ to 2483 KG/M ³ , so use average. (http://structx.com/Soil_Properties_002.html)	
	4,269 KILOGRAMS (TOTAL SOIL DISCHARGED OVER TIME)		
Copper (Cu)		Site is located on regional historic fill (FDR p 6) Copper chromite and copper powder inventoried on site since 1977 (FDR p 5; PAS-00059885 p 89 AKA PAS-00059973). Copper shot and copper chromite was used from approx 2002 to 2006 (FDR p 5)	
	15 YEARS DISCHARGED		
	0 MG/KG (MAX CONCENTRATION)		
	0.000001 kg per mg (Merck Index)		
	0 KILOGRAMS DISCHARGED		
Lead (Pb)		No info on lead use (FDR p 6)	
	15 YEARS DISCHARGED		
	0 MG/KG (MAX CONCENTRATION)		
	0.000001 kg per mg (Merck Index)		
	0 KILOGRAMS DISCHARGED		
Mercury (Hg)		No info on mercury use (FDR p 6)	
	15 YEARS DISCHARGED		
	0 MG/KG (MAX CONCENTRATION)		
	0.000001 kg per mg (Merck Index)		
	0 KILOGRAMS DISCHARGED	Sample E-1 (1.5-2.0 ft bgs) collected in 1992 prior to capping (PAP-00060199).Set to 0 since less than HF.	

PAHs (listed in Benzo(a)pyrene
Equivalent conversion table)

15 YEARS DISCHARGED

5.7 MG/KG (TOTAL PAH AVERAGE CONCENTRATION)
0.000001 kg per mg (Merck Index)

0 KILOGRAMS DISCHARGED
PAHs (others detected)

15 YEARS DISCHARGED
28 MG/KG (TOTAL PAH MAX CONCENTRATION)
0.000001 kg per mg (Merck Index)

0 KILOGRAMS DISCHARGED
PCBs
15 YEARS DISCHARGED

MG/KG AVG OF REPORTED CONCENTRATIONS)
0.000001 kg per mg (Merck Index)

0 KILOGRAMS DISCHARGED
DDx

15 YEARS DISCHARGED within DDx Timeline
MG/KG (MAX CONCENTRATION)
3.785 L per gallon (Merck Index)
0.000001 kg per mg (Merck Index)

0 KILOGRAMS DISCHARGED
Dieldrin

15 YEARS DISCHARGED within Dieldrin Timeline
MG/KG (MAX CONCENTRATION)
3.785 L per gallon (Merck Index)
0.000001 kg per mg (Merck Index)

0 KILOGRAMS DISCHARGED
Dioxins/Furans
NONE FOUND IN AVAILABLE DOCUMENTATION

15 YEARS DISCHARGED
0 MG/KG (MAX CONCENTRATION)
0.000001 kg per mg (Merck Index)

0 calc kg COC discharged

SUMMARY CMASS ESTIMATES:

0.00 kg Copper
0.00 kg Lead
0.00 kg Mercury
5.73 kg PAHs (Benzo(a)pyrene Equivalent)
0.12 kg PAHs (Other)
0.00 kg PCBs
0.00 kg DDx
0.00 kg Dieldrin
0.00 kg Dioxins/Furans

5.85 MASS (KG) DISCHARGED FROM SURFACE SOIL

Data below the Benzo(a)pyrene Equivalent Table

	Contaminant	Concentration (mg/kg)	Toxic Equivalency Factor	Benzo(a)pyrene Equivalents
Sample A-1 (1.5-2.0 ft bgs) collected in 1992 prior to capping (PAP-00060200). Highest concentrations within drum storage area	Benzo(a)pyrene	4.100	1.0	4.1000
	Benzo(a)anthracene	5.150	0.1	0.5150
	Benzo(b)fluoranthene	8.650	0.1	0.8650
	Benzo(k)fluoranthene	0.000	0.01	0.0000
	Chrysene	4.480	0.001	0.0045
	Dibenz(a,h)anthracene	0.000	1.0	0.0000
	Indeno(1,2,3-cd)pyrene	2.460	0.1	0.2460
DE Residential = 0.1 mg/kg; DE Industrial = 0.7 mg/kg Total Benzo(a)pyrene Equivalents =				5.7

Sample A-1 (1.5-2.0 ft bgs) collected in 1992 prior to capping (PAP-00060200). Highest concentrations within drum storage area

Anthracene	0.28
Fluoranthene	18.2
Phenanthrene	10
SUM	28.48

Facility Base Scores, Culpability Factor, Cooperation Factor and Adjusted Base Scores - Protocol Calculation

Elan Chemical Co., Inc.

268 Doremus Avenue Newark NJ 07105

Facility BS	CUF	CUF_Category	CUF_NOTES	COF	COF_NOTES	Facillty Adjusted BS
1.112E-8	5.0%	Occasional Noncompliance	PVSC filed suit against Elan alleging that Elan discharged pollutants in excess of the discharge limitations of its PVSC Permit No. 20403242 (PAS-00059893, PAS-00060847 et seq.). No OU2 COCs were alleged to be associated with these discharges (PAS-00060849-50). An inspection of Elan by the NJDEP in December 1988 noted a drum storage area was sloped down into drainage depressions, which flowed to the Passaic River. Oil was observed to be leaking from the drums and evidence was found of past spills of other materials in the area. (PAS-00061334-37).	0.0%	0% Cooperation with conduct of allocation and requests for related information	1.167E-8

AP_ABS	1.167E-8
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Facility Base Scores, Culpability Factor, Cooperation Factor and Adjusted Base Scores - Allocation Calculation

Elan Chemical Co., Inc.

268 Doremus Avenue	Newark	NJ	07105
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Facility BS	CUF	CUF_Category	CUF_NOTES	COF	COF_NOTES	Facillty Adjusted BS
6.032E-8	5.0%	Occasional Noncompliance	PVSC filed suit against Elan alleging that Elan discharged pollutants in excess of the discharge limitations of its PVSC Permit No. 20403242 (PAS-00059893, PAS-00060847 et seq.). No OU2 COCs were alleged to be associated with these discharges (PAS-00060849-50). An inspection of Elan by the NJDEP in December 1988 noted a drum storage area was sloped down into drainage depressions, which flowed to the Passaic River. Oil was observed to be leaking from the drums and evidence was found of past spills of other materials in the area. (PAS-00061334-37).	0.0%	0% Cooperation with conduct of allocation and requests for related information	6.333E-8

AP_ABS	6.333E-8
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Allocation Facility Cmass Calculation

EnPro Holdings, Inc.	900-1000 South 4th Street	Harrison	NJ	07029
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Constituent Of Concern (COC)	Overland, Fate & Transport C%	Dmass Overland, Fate & Transport	PrePVSC C%	Dmass PrePVSC	PVSC C%	Dmass PVSC	Direct Discharge C%	Dmass Direct Discharge	COC Total Pathway Cmass	COC A%	COC Historic CMass
Copper	100.00%	-	100.00%	1,458.70	0.00%	1,397.92	100.00%	50,705.1	52,163.83	1.018817E-2	531.45
Lead	100.00%	-	100.00%	1,222.69	0.00%	1,171.75	100.00%	42,501.3	43,724.02	1.018817E-2	445.47
Mercury	100.00%	9.87	100.00%	-	0.00%	-	100.00%	-	9.87	1.018817E-2	0.1
HPAHs	100.00%	5.52	100.00%	55,138.10	0.00%	52,840.68	100.00%	1,916,623.3	1,971,766.87	1.018817E-2	20,088.7
LPAHs	100.00%	9.47	100.00%	36,772.05	0.00%	35,239.88	100.00%	1,278,211.6	1,314,993.14	1.018817E-2	13,397.38
PCBs	100.00%	4.11	100.00%	-	0.00%	-	100.00%	-	4.11	1.018817E-2	0.04
DDx	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0
Dieldrin	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0
Dioxins_Furans	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0

EnPro Holdings, Inc.

900-1000 South 4th Street

Harrison

NJ

07029

Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	COC Historic CMass	COC Relative Contribution	COC Base Score
Copper	0.69	2,100,000.00	531.45	2.531E-4	1.746E-4
Lead	0.01	3,200,000.00	445.47	1.392E-4	1.392E-6
Mercury	0.95	42,000.00	0.1	2.394E-6	2.275E-6
HPAHs	0.05	240,000.00	20,088.7	8.370E-2	4.185E-3
LPAHs	0.01	170,000.00	13,397.38	7.881E-2	7.881E-4
PCBs	12.87	26,000.00	0.04	1.611E-6	2.073E-5
DDx	1.37	27,000.00	0	0	0
Dieldrin	0.13	390.00	0	0	0
Dioxins_Furans	83.92	38.00	0	0	0

Allocation Facility COC Base Scores - Alternative Calulcation

EnPro Holdings, Inc.	900-1000 South 4th Street	Harrison	NJ	07029
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Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	Total Cmass (TCmass)	Total OS COC ACmass	COC %	COC Historic CMass	Facility OS COC Cmass	COC Relative Responsibility	COC Base Score
Copper	0.69	2,100,000.00	276,960.25	2,097,178.28	1.883E-1	531.45	394,991.18	1.883E-1	1.300E-1
Lead	0.01	3,200,000.00	288,577.67	3,197,059.92	1.515E-1	445.47	484,404.44	1.515E-1	1.515E-3
Mercury	0.95	42,000.00	4,322.53	41,955.96	2.283E-3	0.1	95.8	2.283E-3	2.169E-3
HPAHs	0.05	240,000.00	4,346,388.50	195,718.24	4.537E-1	20,088.7	88,788.83	4.537E-1	2.268E-2
LPAHs	0.01	170,000.00	3,012,835.14	139,304.72	4.365E-1	13,397.38	60,801.45	4.365E-1	4.365E-3
PCBs	12.87	26,000.00	20,066.54	25,795.56	2.048E-4	0.04	5.28	2.048E-4	2.636E-3
DDx	1.37	27,000.00	2,516.93	26,974.36	0	0	0	0	0
Dieldrin	0.13	390.00	1.27	389.99	0	0	0	0	0
Dioxins_Furans	83.92	38.00	3,729.82	0.00	0	0	0	0	0

Facility Bypass Information

EnPro Holdings, Inc.	900-1000 South 4th Street	Harrison	NJ	07029
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Item	Bypass Name	Bypass Type	Time %	Flow %	Bypass Notes
1	Newark Bay	Bypass	0.00%	0.00%	Did not discharge waste into the Passaic river

Discharge Calcs	POTW Discharge Information	COMMENTS/NOTES
	gal discharged per day/week/month	Steel Mill/Arms Production
	# hours/per day discharged	No available data on any discharge volumes or COCs.
	#days/week discharged	Prior to 1971 directly discharged to Passaic River
	#weeks/yr discharged	From 1971-1974 discharged to POTW
951,012,000	calc gal/yr discharge	All information based on Research from various sources:
		- EPA Sector Notebook
1971	Yr Ops started	- Studies of Environmental Science, Volume 5, 1979 pages 217-227
1974	Yr Ops ceased	10m ³ of wastewater per ton of steel produced
4	calc #yrs facility operated	assume 360,000 tons/per year steel
Copper (Cu)		
4	#yrs facility discharged	1574.10 #/year based on EPA Sector Notebook, Exhibit 8
0.1984	calc mg/L COC discharged	converted to 0.198 mg/l based on volume
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
2,856.63	calc kg COC discharged	
Lead (Pb)		
4	#yrs facility discharged	1319.83 #/year based on EPA Sector Notebook, Exhibit 8
0.1663	calc mg/L COC discharged	converted to 0.1663 mg/l based on volume
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
2,394.44	calc kg COC discharged	
Mercury (Hg)		
4	#yrs facility discharged	No Mercury
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
HPAHs		
4	#yrs facility discharged	5% Oil and Grease in Wastewater per Studies of Env Science Reference
124.99	calc mg/L O&G	assume .25% of the 5% is discharged = 124.99 mg/l oil and grease
10%	% O&G that is considered PAHs	
60%	% PAHs considered as HPAHs	
7.4994	calc mg/L HPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
107,978.77	calc kg COC discharged	
LPAHs		
4	#yrs facility discharged	5% Oil and Grease in Wastewater per Studies of Env Science Reference
124.99	calc mg/L O&G	assume .25% of the 5% is discharged = 124.99 mg/l oil and grease
10%	% O&G that is considered PAHs	
40%	% PAHs considered as LPAHs	plus
5.0014	calc mg/L LPAHs	Naphthalene = .0015mg/l
3.785	L per gallon (Merck Index)	Anthracene = .000311 mg/l
0.000001	kg per mg (Merck Index)	
72,011.92	calc kg COC discharged	
PCBs		
4	#yrs facility discharged within PCBs Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
DDx		
2	#yrs facility discharged within DDx Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dieldrin		
4	#yrs facility discharged within Dieldrin Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxins/Furans		
4	#yrs facility discharged	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4-D		
4	#yrs facility discharged within 2,4-D Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,5-T		
4	#yrs facility discharged within 2,4,5-T Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,6-TCP		
4	#yrs facility discharged within 2,4,6-TCP Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Summary DMassCOC for POTW:		
2,856.63	kg Copper	
2,394.44	kg Lead	
-	kg Mercury	
107,978.77	kg HPAHs	
72,011.92	kg LPAHs	
-	kg PCBs	
-	kg DDx	
-	kg Dieldrin	
-	kg Dioxins/Furans	

Discharge Calcs	Direct Discharge Information	COMMENTS/NOTES
	# hours/day discharged	
	# days/week discharged	
	# weeks/yr discharged	
951,012,000	# gals/yr directly discharged	COC concentrations same as for PVSC
4.08	ft; 30yr average annual precipitation per Rutgers information	
	acres	
43,560	ft2 per acre	
1900	Yr Ops started	
1971	Yr Ops ceased	
71	calc #yrs facility operated	
Copper (Cu)		
71	#yrs facility discharged	
0.1984	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
50,705.13	calc kg COC discharged	
Lead (Pb)		
71	#yrs facility discharged	
0.1663	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
42,501.33	calc kg COC discharged	
Mercury (Hg)		
71	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
HPAHs		
71	#yrs facility discharged	
7.4994	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
1,916,623.23	calc kg COC discharged	
LPAHs		
71	#yrs facility discharged	
5.0014	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
1,278,211.66	calc kg COC discharged	
PCBs		
43	#yrs facility discharged within PCBs Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
DDx		
32	#yrs facility discharged within DDx Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dieldrin		
22	#yrs facility discharged within Dieldrin Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxins/Furans		
71	#yrs facility discharged	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4-D		
26	#yrs facility discharged within 2,4-D Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,5-T		
27	#yrs facility discharged within 2,4,5-T Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,6-TCP		
22	#yrs facility discharged within 2,4,6-TCP Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Summary DMassCOC for Direct Discharge:		
50,705.13	kg Copper	
42,501.33	kg Lead	
-	kg Mercury	
1,916,623.23	kg HPAHs	
1,278,211.66	kg LPAHs	
-	kg PCBs	
-	kg DDx	
-	kg Dieldrin	
-	kg Dioxins/Furans	

Discharge Calcs	Direct Discharge Information	ASSUMPTIONS, REFERENCES	COMMENTS/NOTES
	4.08 FEET/YEAR AVERAGE PRECIPITATION	Long term average annual precipitation includes floods and hurricane events occurring over time.	Data from Rutgers University.
	48 ACRES - TOTAL SITE AREA (acres)	FDR, Page 1	
	24 ACRES - AFFECTED AREA	Approximately half of site was covered by buildings (Sanborn).	
	4,046.86 METERS ² /ACRE		
	97,125 METERS ² (AFFECTED AREA)		
	0.0001 METERS/YEAR (ERODED SOIL THICKNESS)	For this estimate, used a surface soil erosion rate of 0.1 mm/year, or 0.004 inches/year.	
	10 METERS ³ /YEAR (ERODED SOIL VOLUME)	VOLUME/YEAR DISCHARGED TO PASSAIC RIVER	
	1900 Year site operations began	FDR, Page 1.	
	1947 Year site processing and storage operations ceased	FDR, Page 1.	
	48 NUMBER YEARS DISCHARGE		
	466 METERS ³ (TOTAL SOIL VOLUME DISCHARGED OVER TIME)		
	1,963 KG/M ³ SOIL DENSITY	Site soil to depths of 15 feet bgs consists of fill (black cinders, gravel, sand, and silt with varying degrees of refuse (paper, plastic, concrete, brick, etc.) and slag (PAP-00031288). Bulk density range for silty sand and gravel 1442 KG/M ³ to 2483 KG/M ³ , so use average. (http://structx.com/Soil_Properties_002.html)	
	915,147 KILOGRAMS (TOTAL SOIL DISCHARGED OVER TIME)		
Copper (Cu)	48 YEARS DISCHARGED 0 MG/KG (MAX CONCENTRATION)	Copper concentration in post-excavation soil sample S-202 (PAP-00083223). Set to 0 since less than HF.	
	0.000001 kg per mg (Merck Index)		
	0.00 KILOGRAMS DISCHARGED		
Lead (Pb)	48 YEARS DISCHARGED 0 MG/KG (MAX CONCENTRATION)	Lead concentration in post-excavation soil sample S-202 (PAP-00083223). Set to 0 since less than HF.	
	0.000001 kg per mg (Merck Index)		
	0.00 KILOGRAMS DISCHARGED		
Mercury (Hg)	48 YEARS DISCHARGED 10.20 MG/KG (MAX CONCENTRATION)	Mercury concentration in post-excavation soil sample S-203 (PAP-00083223).	
	0.000001 kg per mg (Merck Index)		
	9.33 KILOGRAMS DISCHARGED		
PAHs (listed in Benzo(a)pyrene Equivalent conversion table)	48 YEARS DISCHARGED 5.4 MG/KG (TOTAL PAH MAC CONCENTRATION)	Total concentration of PAH compounds forBenzo(a)pyrene Equivalent https://floridadep.gov/waste/petroleum-restoration/documents/benzo-pyrene-equivalents-conversion-table-one-sample.	
	0.000001 kg per mg (Merck Index)	Sum of Benzo(a)pyrene Equivalent conversion concentrations using maximum concentrations.	
	4.90 KILOGRAMS DISCHARGED		
PAHs (others detected)	48 YEARS DISCHARGED 10 MG/KG (TOTAL PAH MAX CONCENTRATION)	Data below the Benzo(a)pyrene Equivalent Table	
	0.000001 kg per mg (Merck Index)		
	9.04 KILOGRAMS DISCHARGED		
PCBs	17 YEARS DISCHARGED 3.8 MG/KG (MAX CONCENTRATION)	Number of years reflect a 1930 start date for PCBs. Maximum total PCB soil concentration in sample RR Tracks (PAP-00083250)	
	0.000001 kg per mg (Merck Index)		
	3.48 KILOGRAMS DISCHARGED		
DDx	0 YEARS DISCHARGED within DDx Timeline 0 MG/KG (MAX CONCENTRATION)	NONE FOUND IN AVAILABLE DOCUMENTATION	
	3.785 L per gallon (Merck Index)		
	0.000001 kg per mg (Merck Index)		
	0.00 KILOGRAMS DISCHARGED		

Contaminant	Concentration (mg/kg)	Toxic Equivalency Factor	Benzo(a)pyrene Equivalents
Benzo(a)pyrene	3.900	1.0	3.9000
Benzo(a)anthracene	4.000	0.1	0.4000
Benzo(b)fluoranthene	6.100	0.1	0.6100
Benzo(k)fluoranthene	0.000	0.01	0.0000
Chrysene	4.600	0.001	0.0046
Dibenz(a,h)anthracene	0.340	1.0	0.3400
Indeno(1,2,3-cd)pyrene	0.990	0.1	0.0990
DE Residential = 0.1 mg/kg; DE Industrial = 0.7 mg/kg			
Total Benzo(a)pyrene Equivalents =			5.4

Sample B-6 (0-0.5 ft bgs) (PAP-00030278-9)	
Anthracene	1.6
Acenaphthene	0.89
Acenaphthylene	0.17
Fluorene	0.54
Naphthalene	0.48
Phenanthrene	6.2
2-Methylnaphthalene	0
SUM	9.88

Dieldrin	0 YEARS DISCHARGED within Dieldrin Timeline	NONE FOUND IN AVAILABLE DOCUMENTATION
	0 MG/KG (MAX CONCENTRATION)	
	3.785 L per gallon (Merck Index)	
	0.000001 kg per mg (Merck Index)	
	0.00 KILOGRAMS DISCHARGED	

Dioxins/Furans	0 YEARS DISCHARGED	NONE FOUND IN AVAILABLE DOCUMENTATION
	0 MG/KG (MAX CONCENTRATION)	
	0.000001 kg per mg (Merck Index)	
	0 calc kg COC discharged	

SUMMARY CMASS ESTIMATES:	
	0.00 kg Copper
	0.00 kg Lead
	9.33 kg Mercury
	4.90 kg PAHs (Benzo(a)pyrene Equivalent)
	9.04 kg PAHs (Other)
	3.48 kg PCBs
	0.00 kg DDX
	0.00 kg Dieldrin
	0.00 kg Dioxins/Furans

26.75 MASS (KG) DISCHARGED FROM SURFACE SOIL
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Discharge Calcs	Direct Discharge Information	ASSUMPTIONS, REFERENCES	COMMENTS/NOTES
	4.08 FEET/YEAR AVERAGE PRECIPITATION	Long term average annual precipitation includes floods and hurricane events occurring over time.	Data from Rutgers University.
	14.85 ACRES - TOTAL SITE AREA (acres)	(FDR, Page 1)	
	4 ACRES - AFFECTED AREA	Estimated 75 percent of site was covered by buildings as early as 1942 (PAP-00027959).	
	4,046.86 METERS ² /ACRE		
	14,973 METERS ² (AFFECTED AREA)		
	0.0001 METERS/YEAR (ERODED SOIL THICKNESS)	For this estimate, used a surface soil erosion rate of 0.1 mm/year, or 0.004 inches/year.	
	1 METERS ³ /YEAR (ERODED SOIL VOLUME)	VOLUME/YEAR DISCHARGED TO PASSAIC RIVER	
	1938 Year site operations began	FDR, Page 1.	
	1974 Year site processing and storage operations ceased	FDR, Page 1.	
	36 NUMBER YEARS DISCHARGE		
	54 METERS ³ (TOTAL SOIL VOLUME DISCHARGED OVER TIME)		
	1,963 KG/M ³ SOIL DENSITY	Site reported as located on Historic Fill (FDR, Page 7). Historic Fill reported as sand with silt and fine gravel. Bulk density range for silty sand and gravel 1442 KG/M ³ to 2483 KG/M ³ , so use average. (http://structx.com/Soil_Properties_002.html)	
	105,814 KILOGRAMS (TOTAL SOIL DISCHARGED OVER TIME)		
Copper (Cu)	36 YEARS DISCHARGED 0 MG/KG (MAX CONCENTRATION)	Copper concentration in on-site surface soil sample AOC1e-2 (PAP-00028401). Set to 0 since less than HF.	
	0.000001 kg per mg (Merck Index)		
	0.00 KILOGRAMS DISCHARGED		
Lead (Pb)	36 YEARS DISCHARGED 0 MG/KG (MAX CONCENTRATION)	Lead concentration in on-site soil sample AOC4-9 (PAP-00028404). Set to 0 since less than HF.	
	0.000001 kg per mg (Merck Index)		
	0.00 KILOGRAMS DISCHARGED		
Mercury (Hg)	36 YEARS DISCHARGED 5.10 MG/KG (MAX CONCENTRATION)	Mercury concentration in on-site soil sample SSS-5 (PAP-00028412).	
	0.000001 kg per mg (Merck Index)		
	0.54 KILOGRAMS DISCHARGED		
PAHs (listed in Benzo(a)pyrene Equivalent conversion table)	36 YEARS DISCHARGED 5.9 MG/KG (TOTAL PAH MAX CONCENTRATION)	Total concentration of PAH compounds for Benzo(a)pyrene Equivalent https://floridadep.gov/waste/petroleum-restoration/documents/benzo-pyrene-equivalents-conversion-table-one-sample. Sum of Benzo(a)pyrene Equivalent conversion concentrations using maximum concentrations.	
	0.000001 kg per mg (Merck Index)		
	0.62 KILOGRAMS DISCHARGED		
PAHs (others detected)	36 YEARS DISCHARGED 4.1 MG/KG (TOTAL PAH MAX CONCENTRATION)	Data below the Benzo(a)pyrene Equivalent Table	
	0.000001 kg per mg (Merck Index)		
	0.43 KILOGRAMS DISCHARGED		
PCBs	36 YEARS DISCHARGED 5.97 MG/KG (MAX CONCENTRATION)	PCBs concentration in on-site post-excavation soil sample AOEB/C-S1(PW) (PAP-00028874). Sample collected between 6-6.5 feet bgs.	
	0.000001 kg per mg (Merck Index)		
	0.63 KILOGRAMS DISCHARGED		
DDx	NONE FOUND IN AVAILABLE DOCUMENTATION 0 YEARS DISCHARGED within DDx Timeline		
	0.0061 MG/KG (MAX CONCENTRATION)	4,4-DDE concentration in on-site soil sample GREEN-S1 (PAP-00028849). Sample collected bewteen 3-3.5 feet bgs.	
	3.785 L per gallon (Merck Index)		
	0.000001 kg per mg (Merck Index)		
	0.00 KILOGRAMS DISCHARGED		

Surface soil sample AOC1e-2 (PAP-00028401)	Contaminant	Concentration (mg/kg)	Toxic Equivalency Factor	Benzo(a)pyrene Equivalents
	Benzo(a)pyrene	3.740	1.0	3.7400
	Benzo(a)anthracene	4.770	0.1	0.4770
	Benzo(b)fluoranthene	5.820	0.1	0.5820
	Benzo(k)fluoranthene	2.550	0.01	0.0255
	Chrysene	4.980	0.001	0.0050
	Dibenz(a,h)anthracene	0.784	1.0	0.7840
	Indeno(1,2,3-cd)pyrene	2.640	0.1	0.2640
DE Residential = 0.1 mg/kg; DE Industrial = 0.7 mg/kg				
Total Benzo(a)pyrene Equivalents =				5.9

Sample AOC1e-2 (PAP-00028401)	
Anthracene	0.61
Acenaphthene	0.07
Acenaphthylene	0.43
Fluorene	0.06
Naphthalene	
	0.31
Phenanthrene	2.62
2-Methylnaphthalene	0
SUM	4.1

Dieldrin	0 YEARS DISCHARGED within Dieldrin Timeline 0.0133 MG/KG (MAX CONCENTRATION)	Dieldrin concentration in on-site soil sample AOED-4S (PAP-00028885). Sample collected between 6-6.5 feet bgs.
	3.785 L per gallon (Merck Index) 0.000001 kg per mg (Merck Index)	
	0.00 KILOGRAMS DISCHARGED	
Dioxins/Furans	NONE FOUND IN AVAILABLE DOCUMENTATION	
	0 YEARS DISCHARGED 0 MG/KG (MAX CONCENTRATION)	
	0.000001 kg per mg (Merck Index)	
	0 calc kg COC discharged	
SUMMARY CMASS ESTIMATES:		
	0.00 kg Copper	
	0.00 kg Lead	
	0.54 kg Mercury	
	0.62 kg PAHs (Benzo(a)pyrene Equivalent)	
	0.43 kg PAHs (Other)	
	0.63 kg PCBs	
	0.00 kg DDx	
	0.00 kg Dieldrin	
	0.00 kg Dioxins/Furans	
2.23 MASS (KG) DISCHARGED FROM SURFACE SOIL		

EnPro Holdings, Inc.

ARR2325

EnPro Holdings, Inc.

07029

ARR2326

**Allocator's Determinations Regarding
Legal Defenses Raised by Allocation Parties**

ENPRO HOLDINGS

Enpro Holdings asserts that Respondent [EnPro Holdings, Inc.] and Crucible Steel Corporation had, no relationship to any parties that released or disposed of COCs at the Facility following Crucible Steel Corporation's sales of the western portion (Guyon Property) in 1947 and 1967 and the eastern portion (Spiegel Property) in 1974.

ALLOCATOR'S DETERMINATION - While EnPro alleges that it was not an owner or operator under CERCLA, it fails to provide a substantial factual or legal basis to support that claim. The Allocator does not believe that EnPro will prevail in an action to overturn EPA's determination of EnPro as a PRP based on the supplied information.

Allocation Facility Cmass Calculation

EPEC Polymers, Inc.	290 River Drive	Garfield	NJ	07026
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Constituent Of Concern (COC)	Overland, Fate & Transport C%	Dmass Overland, Fate & Transport	PrePVSC C%	Dmass PrePVSC	PVSC C%	Dmass PVSC	Direct Discharge C%	Dmass Direct Discharge	COC Total Pathway Cmass	COC A%	COC Historic CMass
Copper	100.00%	747.87	100.00%	12,973.94	2.32%	31,353.69	100.00%	-	14,449.22	1.018817E-2	147.21
Lead	100.00%	1,115.01	100.00%	1,161.85	2.32%	2,807.79	100.00%	-	2,342.	1.018817E-2	23.86
Mercury	100.00%	25.29	100.00%	4.36	2.32%	10.53	100.00%	-	29.89	1.018817E-2	0.3
HPAHs	100.00%	18.8	100.00%	-	2.32%	-	100.00%	-	18.8	1.018817E-2	0.19
LPAHs	100.00%	28.79	100.00%	-	2.32%	-	100.00%	-	28.79	1.018817E-2	0.29
PCBs	100.00%	2.99	100.00%	-	2.32%	-	100.00%	-	2.99	1.018817E-2	0.03
DDx	100.00%	-	100.00%	-	2.32%	-	100.00%	-	0	1.018817E-2	0
Dieldrin	100.00%	-	100.00%	-	2.32%	-	100.00%	-	0	1.018817E-2	0
Dioxins_Furans	100.00%	-	100.00%	-	2.32%	-	100.00%	-	0	1.018817E-2	0

EPEC Polymers, Inc.

290 River Drive

Garfield

NJ

07026

Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	COC Historic CMass	COC Relative Contribution	COC Base Score
Copper	0.69	2,100,000.00	147.21	7.010E-5	4.837E-5
Lead	0.01	3,200,000.00	23.86	7.456E-6	7.456E-8
Mercury	0.95	42,000.00	0.3	7.251E-6	6.888E-6
HPAHs	0.05	240,000.00	0.19	7.981E-7	3.990E-8
LPAHs	0.01	170,000.00	0.29	1.725E-6	1.725E-8
PCBs	12.87	26,000.00	0.03	1.172E-6	1.508E-5
DDx	1.37	27,000.00	0	0	0
Dieldrin	0.13	390.00	0	0	0
Dioxins_Furans	83.92	38.00	0	0	0

Allocation Facility COC Base Scores - Alternative Calulcation

EPEC Polymers, Inc.	290 River Drive	Garfield	NJ	07026
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Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	Total Cmass (TCmass)	Total OS COC ACmass	COC %	COC Historic CMass	Facility OS COC Cmass	COC Relative Responsibility	COC Base Score
Copper	0.69	2,100,000.00	276,960.25	2,097,178.28	5.217E-2	147.21	109,411.32	5.217E-2	3.600E-2
Lead	0.01	3,200,000.00	288,577.67	3,197,059.92	8.116E-3	23.86	25,946.23	8.116E-3	8.116E-5
Mercury	0.95	42,000.00	4,322.53	41,955.96	6.915E-3	0.3	290.13	6.915E-3	6.569E-3
HPAHs	0.05	240,000.00	4,346,388.50	195,718.24	4.325E-6	0.19	0.85	4.325E-6	2.163E-7
LPAHs	0.01	170,000.00	3,012,835.14	139,304.72	9.556E-6	0.29	1.33	9.556E-6	9.556E-8
PCBs	12.87	26,000.00	20,066.54	25,795.56	1.490E-4	0.03	3.84	1.490E-4	1.918E-3
DDx	1.37	27,000.00	2,516.93	26,974.36	0	0	0	0	0
Dieldrin	0.13	390.00	1.27	389.99	0	0	0	0	0
Dioxins_Furans	83.92	38.00	3,729.82	0.00	0	0	0	0	0

Facility Bypass Information

EPEC Polymers, Inc.	290 River Drive	Garfield	NJ	07026
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Item	Bypass Name	Bypass Type	Time %	Flow %	Bypass Notes
1	Yantacaw	Bypass	2.32%	100.00%	

Discharge Calcs	POTW Discharge Information	COMMENTS/NOTES
696,600	gal discharged per day	
24	# hours/day discharged (PAP-00039955, PAP-00040041)	
7	# days/week discharged (PAP-00039955, PAP-00040041)	
52	# weeks/yr (PAP-00039955, PAP-00040041)	
229,996,000	calc gal/yr discharge	(FDR) (PAP-00039955-59, PAP-0040041-47, PAP-00040062-154, PAP-00040165-67, PAP-00040181-198, PAP-00040199-212)
1963	Yr Ops started	
1982	Yr Ops ceased	
19	calc #yrs facility operated	PAP-00323278
Copper (Cu)		
19	#yrs facility discharged	
2.68	calc mg/L COC discharged	(FDR) (PAP-00039955-59, PAP-0040041-47, PAP-00322628-710, PAP-00040199-212)
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
44,328	calc kg COC discharged	
Lead (Pb)		
19	#yrs facility discharged	
0.24	calc mg/L COC discharged	(FDR) (PAP-00039955-59, PAP-0040041-47, PAP-00322628-710, PAP-00040199-212)
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
3.970	calc kg COC discharged	
Mercury (Hg)		
19	#yrs facility discharged	
0.0009	calc mg/L COC discharged	(FDR) (PAP-0040041-47, PAP-00322628-710, PAP-00040199-212)
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
15	calc kg COC discharged	
HPAHs		
19	#yrs facility discharged	
-	calc mg/L O&G;	(FDR) (PAP-0040041-47, PAP-00040199-212, PAP-00040211)
10%	% O&G that is considered PAHs	
60%	% PAHs considered as HPAHs	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
LPAHs		
19	#yrs facility discharged	
-	calc mg/L O&G;	(FDR) (PAP-0040041-47, PAP-00040199-212, PAP-00040211)
10%	% O&G that is considered PAHs	
40%	% PAHs considered as LPAHs	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
PCBs		(ND at ppb)
15	#yrs facility discharged within PCBs Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
DDx		(ND at ppb)
10	#yrs facility discharged within DDx Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dieldrin		(ND at ppb)
20	#yrs facility discharged within Dieldrin Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxins/Furans		(believed absent in permit application)
19	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4-D		(believed absent in permit application)
20	#yrs facility discharged within 2,4-D Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,5-T		(believed absent in permit application)
20	#yrs facility discharged within 2,4,5-T Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,6-TCP		(believed absent in permit application)
13	#yrs facility discharged within 2,4,6-TCP Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Summary DMassCOC for POTW:		
44,328	kg Copper	
3,970	kg Lead	
15	kg Mercury	
-	kg HPAHs	
-	kg LPAHs	
-	kg PCBs	
-	kg DDx	
-	kg Dieldrin	
-	kg Dioxins/Furans	

Direct_SW_Passaic

Discharge Calcs	Direct Discharge Information	ASSUMPTIONS, REFERENCES	COMMENTS/NOTES
	4.08 FEET/YEAR AVERAGE PRECIPITATION	Long term average annual precipitation includes floods and hurricane events occurring over time.	Data from Rutgers University.
	6.9 ACRES - TOTAL SITE AREA (acres) 2.87 ACRES - AFFECTED AREA	PAP-00039956 Buildings occupy approximately 50 percent of the facility; paved areas (primarily asphalt) cover an estimated 25 percent of the facility (After 1960). The remaining 25 percent of the surface is unpaved (1991)(PAP-00040989)	
	4,046.86 METERS ² /ACRE		
	11,614 METERS ² (AFFECTED AREA)		
	0.0001 METERS/YEAR (ERODED SOIL THICKNESS)	For this estimate, used a surface soil erosion rate of 0.1 mm/year, or 0.004 inches/year.	
	1 METERS ³ /YEAR (ERODED SOIL VOLUME)	VOLUME/YEAR DISCHARGED TO PASSAIC RIVER	
	1919 Year site operations began - 1919.	The first buildings at the Garfield Plant were constructed in 1891 by Fritzche Brothers to facilitate chemical manufacturing. Heyden had owned and operated the facility since the early 1900s as several forms of the Heyden name (PAP-00040999)	In 1919, the site was purchased by a newly formed New York corporation called Heyden Chemical Company of America Inc. The company was consolidated into the Heyden Chemical Corporation in 1925, and in 1956 changed its name to the Heyden Newport Chemical Corporation. Heyden Newport Chemical Corporation was purchased in 1963 by Tenneco. Kalama Chemical Inc. purchased the site from Tenneco in December 1982 (PAP-00032378).
	1982 Year site processing and storage operations ceased	In an agreement dated December 1, 1982 between Tenneco and Kalama Chemical, all liabilities arising out of the condition of the plant, shall remain the respnsibilities of Tenneco (PAP-00039799)	
	63 NUMBER YEARS DISCHARGE	Tenneson liability 91 years, 1891 to 1982 (PAP-00040999)	
	738 METERS ³ (TOTAL SOIL VOLUME DISCHARGED OVER TIME)		
	1,843 KG/M ³ SOIL DENSITY	The facility was built over a sequence of unconsolidated deposits consisiting of fine to coarse sand, silt and clay (PAP-00040396). Cross referencing as Silty Sand at http://structx.com/Soil_Properties_002.html) has a bulk density range 1410 KG/M3 to 2275 KG/M3, so use average of 1842.5 kg/m3.	
	1,359,765 KILOGRAMS (TOTAL SOIL DISCHARGED OVER TIME)	The average bulk density reflects cross reference result.	
		The majority of the facility site is not located on regional historic fill (FDR pg 11)	
Copper (Cu)	63 YEARS DISCHARGED 550 MG/KG (MAX CONCENTRATION) 0.000001 kg per mg (Merck Index)	Table 18 Sample ID B-47-Fill, 0.0-0.5 ft bgs. (PAP-00041872)	
	748 KILOGRAMS DISCHARGED		
Lead (Pb)	63 YEARS DISCHARGED 820 MG/KG (AVERAGE CONCENTRATION) 0.000001 kg per mg (Merck Index)	Lead was detected in surface soil (Sample B-47-Fill) at AEC-15 (Salicylic Acid/Salicylate Production Buildings 10/36/39) at an elevated concentration (PAP-00042177, 80).	
	1,115 KILOGRAMS DISCHARGED		
Mercury (Hg)		Although mercury was not identified as used in the facility processes, purchase orders from 1973 identified the purchased caustic soda as mercury cell material. Analytical results from the caustic soda manufactured using the mercury cell process were not available to verify that the caustic soda did not contain any trace impurities of mercury (PAP-00324677; PAP-00324679; PAP-00324684).	It is assumed that a spill was the source of the soil contamination and that the contamination would have migrated from the surface to the depth confirmed by soil sample analysis in 1991. Given the initial erosion would transport Hg impacted soil of greater concentrations than compared to the soil at depth in 1991, the use of the concentration at depth for the OFT estimate is conservative, with decreased soil concentration/mass than experienced at the time of the spill.
	63 YEARS DISCHARGED	A NJDEP Pretreatment/Residual Waste Survey, dated July 27, 1981, stated mercury was present in the discharge to the POTW (PAP-00040183, 188).	
	18.6 MG/KG (MAX CONCENTRATION)	Max concentration of mercury was detected in subsurface soil (depth of 4 to 4.5 feet, Sample B-53 Fill) at AEC-15 (Salicylic Acid/Salicylate Production Buildings 10/36/39) (PAP-00041873).	
	0.000001 kg per mg (Merck Index)		
	25 KILOGRAMS DISCHARGED		

PAHs (listed in Benzo(a)pyrene Equivalent conversion table)	
63 YEARS DISCHARGED	
13.8 MG/KG (TOTAL PAH AVERAGE CONCENTRATION)	
0.000001 kg per mg (Merck Index)	
19 KILOGRAMS DISCHARGED	
PAHs (others detected)	Fluorene - 14.8 ppm
	Naphthalene - 0.12J ppm
	Phenanthrene - 4.6 ppm
	Anthracene - 1.3 ppm
	Acenaphthene - 0.11J ppm
	Acenaphthylene - 0.24J ppm
63 YEARS DISCHARGED	
21 MG/KG (TOTAL PAH MAX CONCENTRATION)	
0.000001 kg per mg (Merck Index)	
29 KILOGRAMS DISCHARGED	
PCBs	
63 YEARS DISCHARGED	
2.2 MG/KG (MAX OF REPORTED CONCENTRATIONS)	
0.000001 kg per mg (Merck Index)	
3 KILOGRAMS DISCHARGED	
DDx	
0 YEARS DISCHARGED within DDx Timeline	
MG/KG (MAX CONCENTRATION)	
3.785 L per gallon (Merck Index)	
0.000001 kg per mg (Merck Index)	
0 KILOGRAMS DISCHARGED	
Dieldrin	
0 YEARS DISCHARGED within Dieldrin Timeline	
MG/KG (MAX CONCENTRATION)	
3.785 L per gallon (Merck Index)	
0.000001 kg per mg (Merck Index)	
0 KILOGRAMS DISCHARGED	
Dioxins/Furans	
NONE FOUND IN AVAILABLE DOCUMENTATION	
0 YEARS DISCHARGED	
0 MG/KG (MAX CONCENTRATION)	
0.000001 kg per mg (Merck Index)	
0 calc kg COC discharged	
SUMMARY CMASS ESTIMATES:	
747.87 kg Copper	
1,115.01 kg Lead	
25.29 kg Mercury	
18.80 kg PAHs (Benzo(a)pyrene Equivalent)	
28.79 kg PAHs (Other)	
2.99 kg PCBs	
0.00 kg DDx	
0.00 kg Dieldrin	
0.00 kg Dioxins/Furans	
1,938.75 MASS (KG) DISCHARGED FROM SURFACE SOIL	

Total concentration of PAH compounds for Benzo(a)pyrene Equivalent
<https://floridadep.gov/waste/petroleum-restoration/documents/benzo-pyrene-equivalents-conversion-table-one-sample>.

All LMW PAHs from sample B-52-A on PAP-00041872

PCBs were detected in soil samples collected from AEC-24 (Transformer at Building 12) at a maximum of 2.2 milligrams/kilogram (mg/kg) for Aroclor-1260 (PAP-00041881-2).
PAP-00044392 PCB concentration in TP-1

Not a COC at this Site

Not a COC at this Site

Not a COC at this Site

Sample B-52-A on PAP-00041872; FDR Table page 6.	Contaminant (PAP-00040243)	Concentration (mg/kg)	Toxic Equivalency Factor	Benzo(a)pyrene Equivalents
	Benzo(a)pyrene	10.000	1.0	10.0000
	Benzo(a)anthracene	12.000	0.1	1.2000
	Benzo(b)fluoranthene	13.000	0.1	1.3000
	Benzo(k)fluoranthene	2.500	0.01	0.0250
	Chrysene	12.000	0.001	0.0120
	Dibenz(a,h)anthracene	1.000	1.0	1.0000
	Indeno(1,2,3-cd)pyrene	2.900	0.1	0.2900
DE Residential = 0.1 mg/kg; DE Industrial = 0.7 mg/kg				
Total Benzo(a)pyrene Equivalents =				13.8

EPEC Polymers, Inc.

290 River Drive	Garfield	NJ	07026
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Facility BS	CUF	CUF_Category	CUF_NOTES	COF	COF_NOTES	Facillty Adjusted BS
7.047E-5	0.0%	Historically Compliant or No Evidence	PVSC identified violations for pollution entering the Passaic River in 1972, 1972, and 1976 (due to leaks and a polluting boiler blow down line), but the facility addressed the issues promptly and resolved the pollution (PAS-00008606, 10, 12-13). No evidence that COCs involved.	-20.0%	-20% CPG/SPG member - Continuous provision of funding and participation in PRP Group(s) actions to cooperate with governmental/regulatory entities to address environmental or public harm created by own activities	5.637E-5

AP_ABS	5.637E-5
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EPEC Polymers, Inc.

07026

AP_ABS	3.565E-2
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Allocator's Determinations Regarding Legal Defenses Raised by Allocation Parties

EPEC Polymers

EPEC and El Paso argue that they should receive a zero share of responsibility in the Allocation because neither party owned or operated the Garfield Facility, were successors to owners or operators of the Garfield Facility, and never assumed any liability for the alleged discharges at the site that are at issue in this Allocation. EPEC and El Paso have provided the relevant corporate history and supporting documents in prior allocation submissions and have attached the relevant information as Exhibits A and B to this Position Paper. There is no basis to attribute any liabilities associated with TCI's ownership and operation of the Garfield Facility to EPEC and El Paso because TCI retained any and all liabilities associated with the Garfield Facility, and those liabilities ceased to exist upon its dissolution in 1985. See PAP00039823.

EPEC asserts that EPEC Polymers, Inc. ("EPI") and El Paso Tennessee Pipeline Co. ("EPTP") received GNL letters from EPA (*it is assumed that GNL stands for General Notice Letter*); however, EPI and EPTP never owned or operated the Facility, nor were either company ever successors to any party or parties that owned or operated the Facility. Further, neither party assumed any liability for the alleged discharges at the Facility that are at issue in this allocation. EPI and EPTP respond on behalf of Tenneco Chemicals, Inc. ("TCI"), which was a former owner and operator of the Facility during the Relevant Time Period [October 4, 1963 to December 1, 1983].

The letter from Saul Ewing, Arnstein, & Lehr LLP, dated September 9, 2019, to Mr. David Batson stated that the "Heyden Newport" entity that changed its name to Tenneco Chemicals, Inc. in 1965 was not the same entity that owned the Garfield Facility prior to Tenneco's acquisition. The following statement was provided: "In 1919, Heyden Chemical Company of America, Inc., a New York corporation, reportedly acquired the Garfield Site. In 1925, Heyden Chemical Company of America was consolidated with Denhey Corporation to form Heyden Chemical Corporation, a New York corporation. In March 1943, Heyden Chemical Corporation merged into its parent company, Denhey Holding Corporation, a Delaware corporation, and Denhey Holding Corporation was renamed Heyden Chemical Corporation, also incorporated in Delaware. In March 1943, the Garfield Site was transferred by deed from Heyden Chemical Corporation, a New York corporation, to Heyden Chemical Corporation, a Delaware corporation. Heyden Chemical Corporation then changed its name to Heyden Newport Chemical Corporation ("Old Heyden"). In 1963, Tennessee Gas Transmission Company ("TGT"), Old Heyden, and HDN Corporation, a subsidiary of TGT, entered into a transaction whereby Old Heyden sold its assets to HDN in exchange for shares of TGT common stock and the assumption by HDN of certain of Old Heyden's liabilities. After the transaction, HDN changed its name to "Heyden Newport Chemical Corporation" ("Heyden Newport") and filed and recorded in Delaware a change of name amendment on October 4, 1963. At the same time, Old Heyden changed its name to "Denport Corporation" and dissolved (2019 Letter, p. 2).

EPEC asserts that on December 15, 1982, Tenneco Chemicals and Tenneco Polymers entered into an agreement whereby Tenneco Chemicals transferred certain assets to Tenneco Polymers. Pursuant to that agreement, Tenneco Chemicals did not transfer any liabilities related to the Garfield Site, and any transfer of liabilities was limited to litigations and claims known or existing at the time of the conveyance—and expressly referenced in exhibits consisting of litigation dockets generated at the time of the transaction. In 1983, Tenneco Chemicals changed its name to Tenneco Resins, Inc. ("Resins"), and filed for dissolution two years later, in 1985. Tenneco Polymers changed its name to EPEC Polymers, Inc. in 1996,

shortly following El Paso Merger Company's acquisition of the energy assets of Tenneco Inc. As the aforementioned facts demonstrate, at no time did Tenneco Polymers merge or consolidate with Resins. In addition, Tenneco Chemicals was a separate corporation from Tenneco Polymers with assets and operations. Although Tenneco Chemicals was a party to various asset transfers over the course of its corporate existence, it retained any and all liabilities associated with the Garfield Site, and those liabilities ceased to exist upon its dissolution in 1985.

ALLOCATOR'S DETERMINATION – EPEC Polymers provides a persuasive argument that has the potential for litigation success, but which cannot be definitively determined based on the available data. Though the Allocator presumes a substantial chance of success should this matter go to litigation, we leave this matter as a topic for settlement discussions between EPEC Polymers and EPA.

Allocation Facility Cmass Calculation

Essex Chemical Corporation	330 & 352 Doremus Avenue	Newark	NJ	07105
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Constituent Of Concern (COC)	Overland, Fate & Transport C%	Dmass Overland, Fate & Transport	PrePVSC C%	Dmass PrePVSC	PVSC C%	Dmass PVSC	Direct Discharge C%	Dmass Direct Discharge	COC Total Pathway Cmass	COC A%	COC Historic CMass
Copper	100.00%	1.1	100.00%	-	0.00%	-	100.00%	-	1.1	1.018817E-2	0.01
Lead	100.00%	70.09	100.00%	-	0.00%	-	100.00%	-	70.09	1.018817E-2	0.71
Mercury	100.00%	0.43	100.00%	-	0.00%	-	100.00%	-	0.43	1.018817E-2	0
HPAHs	100.00%	0.49	100.00%	-	0.00%	1.02	100.00%	2.4	2.86	1.018817E-2	0.03
LPAHs	100.00%	0.23	100.00%	-	0.00%	0.68	100.00%	1.6	1.81	1.018817E-2	0.02
PCBs	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0
DDx	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0
Dieldrin	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0
Dioxins_Furans	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0

Essex Chemical Corporation

330 & 352 Doremus Avenue

Newark

NJ

07105

Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	COC Historic CMass	COC Relative Contribution	COC Base Score
Copper	0.69	2,100,000.00	0.01	5.337E-9	3.682E-9
Lead	0.01	3,200,000.00	0.71	2.232E-7	2.232E-9
Mercury	0.95	42,000.00	0	1.043E-7	9.909E-8
HPAHs	0.05	240,000.00	0.03	1.214E-7	6.069E-9
LPAHs	0.01	170,000.00	0.02	1.084E-7	1.084E-9
PCBs	12.87	26,000.00	0	0	0
DDx	1.37	27,000.00	0	0	0
Dieldrin	0.13	390.00	0	0	0
Dioxins_Furans	83.92	38.00	0	0	0

Allocation Facility COC Base Scores - Alternative Calulcation

Essex Chemical Corporation	330 & 352 Doremus Avenue	Newark	NJ	07105
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Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	Total Cmass (TCmass)	Total OS COC ACmass	COC %	COC Historic CMass	Facility OS COC Cmass	COC Relative Responsibility	COC Base Score
Copper	0.69	2,100,000.00	276,960.25	2,097,178.28	3.972E-6	0.01	8.33	3.972E-6	2.740E-6
Lead	0.01	3,200,000.00	288,577.67	3,197,059.92	2.429E-4	0.71	776.5	2.429E-4	2.429E-6
Mercury	0.95	42,000.00	4,322.53	41,955.96	9.948E-5	0	4.17	9.948E-5	9.450E-5
HPAHs	0.05	240,000.00	4,346,388.50	195,718.24	6.579E-7	0.03	0.13	6.579E-7	3.289E-8
LPAHs	0.01	170,000.00	3,012,835.14	139,304.72	6.006E-7	0.02	0.08	6.006E-7	6.006E-9
PCBs	12.87	26,000.00	20,066.54	25,795.56	0	0	0	0	0
DDx	1.37	27,000.00	2,516.93	26,974.36	0	0	0	0	0
Dieldrin	0.13	390.00	1.27	389.99	0	0	0	0	0
Dioxins_Furans	83.92	38.00	3,729.82	0.00	0	0	0	0	0

Facility Bypass Information

Essex Chemical Corporation	330 & 352 Doremus Avenue	Newark	NJ	07105
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Item	Bypass Name	Bypass Type	Time %	Flow %	Bypass Notes
1	Newark Bay	Bypass	0.00%	0.00%	Did not discharge waste into the Passaic river

Discharge Calcs	POTW Discharge Information	COMMENTS/NOTES
	gal discharged per day/week/month	Non Contact Cooling Water, condensate water and storm water runoff discharged to Passaic River
	# hours/per day discharged	
	#days/week discharged	Discharged wastewater to sanitary sewer, direct discharge storm water, non contact cooling water and
	#weeks/yr discharged	boiler blowdown to Passaic River via 3 outlets
2,900,000	calc gal/yr discharge	
1956	Yr Ops started	
1989	Yr Ops ceased	
33	calc #yrs facility operated	
Copper (Cu)		
	33 #yrs facility discharged	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Lead (Pb)		
	33 #yrs facility discharged	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Mercury (Hg)		
	33 #yrs facility discharged	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
HPAHs		
	33 #yrs facility discharged	
1.868	mg/L TOC discharged; PAP-00116140	NJDEPs Discharge Monitoring Reports - used weighted average based on flows from each outlet and TOC concentration
2.5%	% TOC that is considered O&G	
10%	% O&G that is considered PAHs	
60%	% PAHs considered as HPAHs	
0.003	calc mg/L HPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
1.02	calc kg COC discharged	
LPAHs		
	33 #yrs facility discharged	
1.868	mg/L TOC discharged; PAP-00116140	NJDEPs Discharge Monitoring Reports - used weighted average based on flows from each outlet and TOC concentration
2.5%	% TOC that is considered O&G	
10%	% O&G that is considered PAHs	
40%	% PAHs considered as LPAHs	
0.002	calc mg/L HPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
0.68	calc kg COC discharged	
PCBs		
	22 #yrs facility discharged within PCBs Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
DDx		
	17 #yrs facility discharged within DDx Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dieldrin		
	32 #yrs facility discharged within Dieldrin Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxins/Furans		
	33 #yrs facility discharged	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4-D		
	34 #yrs facility discharged within 2,4-D Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,5-T		
	30 #yrs facility discharged within 2,4,5-T Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,6-TCP		
	20 #yrs facility discharged within 2,4,6-TCP Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Summary DMassCOC for POTW:		
-	kg Copper	
-	kg Lead	
-	kg Mercury	
1.02	kg HPAHs	
0.68	kg LPAHs	
-	kg PCBs	
-	kg DDx	
-	kg Dieldrin	

-	kg Dioxins/Furans	

Discharge Calcs	Direct Discharge Information	COMMENTS/NOTES
	# hours/day discharged	Limited data available
	# days/week discharged	PAP-00115965
	# weeks/yr discharged	PAP-00116075
14,410,000	# gals/yr directly discharged	NJDEPS Permit No. 0002283 Discharge to Passaic River
		PAP-00116140 includes NJDEPS Discharge Monitoring Reports for 1984, 1985 and 1986
4.08	ft: 30yr average annual precipitation per Rutgers information	Only data for TOC (Total Organic Solids) and Volumes through 3 "Outlets)
	acres	No Monitoring for other OU2 COCs
43,560	ft2 per acre	Permit Volumes = Outlet 1, 12.51MGD; Outlet 2, 1.9MGD
1956	Yr Ops started	
1989	Yr Ops ceased	
33	calc #yrs facility operated	
Copper (Cu)		
33	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Lead (Pb)		
33	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Mercury (Hg)		
33	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
HPAHs		
33	#yrs facility operated	
1.868	mg/L TOC discharged; PAP-00116140	NJDEPS Discharge Monitoring Reports - used weighted average based on flows from each outlet and TOC concentration
2.5%	% TOC that is considered O&G	
10%	% O&G that is considered PAHs	
60%	% PAHs considered as HPAHs	
0.003	calc mg/L HPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
5.044	calc kg COC discharged	
LPAHs		
33	#yrs facility operated	
1.868	mg/L TOC discharged; PAP-00116140	NJDEPS Discharge Monitoring Reports - used weighted average based on flows from each outlet and TOC concentration
2.5%	% TOC that is considered O&G	
10%	% O&G that is considered PAHs	
40%	% PAHs considered as LPAHs	
0.002	calc mg/L HPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
3.363	calc kg COC discharged	
PCBs		
22	#yrs facility discharged within PCBs Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
DDx		
17	#yrs facility discharged within DDx Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dieldrin		
32	#yrs facility discharged within Dieldrin Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxins/Furans		
33	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4-D		
34	#yrs facility discharged within 2,4-D Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,5-T		
30	#yrs facility discharged within 2,4,5-T Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,6-TCP		
20	#yrs facility discharged within 2,4,6-TCP Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Summary DMassCOC for Direct Discharge:		
-	kg Copper	
-	kg Lead	
-	kg Mercury	
2.369	kg HPAHs	
1.580	kg LPAHs	
-	kg PCBs	
-	kg DDx	
-	kg Dieldrin	

-	kg Dioxins/Furans	

Discharge Calcs	Direct Discharge Information	ASSUMPTIONS, REFERENCES	COMMENTS/NOTES
	4.08 FEET/YEAR AVERAGE PRECIPITATION	Long term average annual precipitation includes floods and hurricane events occurring over time.	Data from Rutgers University.
	15 ACRES - TOTAL SITE AREA (acres) 2.4 ACRES - AFFECTED AREA	Based on the figure in the FDR (Page 2), it appears that the paved, manufacturing operations used 80% of the site, so affected area is estimated as 20% of the site	
	4,046.86 METERS ² /ACRE		
	9,712 METERS ² (AFFECTED AREA)		
	0.0001 METERS/YEAR (ERODED SOIL THICKNESS)	For this estimate, used a surface soil erosion rate of 0.1 mm/year, or 0.004 inches/year.	
	1 METERS ³ /YEAR (ERODED SOIL VOLUME)	VOLUME/YEAR DISCHARGED TO DITCHES AND PASSAIC	
	1956 Year site operations began	330 Doremus was operating from 1956-1989 and 352 Doremus was operating from 1965 to 1989 (FDR Page 1). To be conservative, used the earlier date as the beginning of operations.	
	1989 Year site processing and storage operations ceased		
	33 NUMBER YEARS DISCHARGE		
	32 METERS ³ (TOTAL SOIL VOLUME DISCHARGED OVER TIME)		
	2,003 KG/M ³ SOIL DENSITY	Most soils at the Newark site consisted of fine grained, clayey silt with organic matter (PAP-00116565). Used structx.com/Soil_Properties_002.html for density. Used the average of silt and clay min (1506 kg/m3) and max (2499 kg/m3).	
	64,182 KILOGRAMS (TOTAL SOIL DISCHARGED OVER TIME)		
Copper (Cu)			Site is located on regional historic fill (FDR page 5) Detected at soil sample location Q-3 (3.5-4 ft bgs) at 110,000 ug/kg (110 ppm); collected 11/21/1990 at the Truck Maintenance Building and Quantum Chemical Areas (PAP-00116914). Selected maximum from shallowest depth.
	33 YEARS DISCHARGED		
	0 MG/KG (MAX CONCENTRATION)		
	0.000001 kg per mg (Merck Index)		Max concentration 110 mg/kg. Set to 0 since less than HF.
	0 KILOGRAMS DISCHARGED		
Lead (Pb)			Detected at soil sample location Q-3 (3.5-4 ft bgs) at 7,000 mg/kg; collected 11/21/1990 at the Quantum Chemical Area (PAP-00116914; PAP-00117022). Selected maximum from shallowest depth.
	33 YEARS DISCHARGED		
	0 MG/KG (MAX CONCENTRATION)		
	0.000001 kg per mg (Merck Index)		7,000 mg/kg max concentration. Set to 0 since less than HF.
	0 KILOGRAMS DISCHARGED		
Mercury (Hg)			
	33 YEARS DISCHARGED		
	5.8 MG/KG (MAX CONCENTRATION)		
	0.000001 kg per mg (Merck Index)		
	0 KILOGRAMS DISCHARGED		
PAHs (listed in Benzo(a)pyrene Equivalent conversion table)			
	33 YEARS DISCHARGED		
	6.5 MG/KG (TOTAL PAH AVERAGE CONCENTRATION)		
	0.000001 kg per mg (Merck Index)		
	0 KILOGRAMS DISCHARGED		
PAHs (others detected)			
	33 YEARS DISCHARGED		
	0 MG/KG (TOTAL PAH MAX CONCENTRATION)		
		PAP-00116913	
	0.000001 kg per mg (Merck Index)		
	0 KILOGRAMS DISCHARGED		

Selected maximum from shallowest depth. PAP-00116959	Contaminant	Concentration (mg/kg)	Toxic Equivalency Factor	Benzo(a)pyrene Equivalents
	Benzo(a)pyrene	4.500	1.0	4.5000
	Benzo(a)anthracene	4.500	0.1	0.4500
	Benzo(b)fluoranthene	4.600	0.1	0.4600
	Benzo(k)fluoranthene	4.000	0.01	0.0400
	Chrysene	5.100	0.001	0.0051
	Dibenz(a,h)anthracene	0.830	1.0	0.8300
	Indeno(1,2,3-cd)pyrene	2.500	0.1	0.2500
	DE Residential = 0.1 mg/kg; DE Industrial = 0.7 mg/kg			
Total Benzo(a)pyrene Equivalents =			6.5	

PCBs		NOT DETECTED (FDR)
	YEARS DISCHARGED	
	MG/KG (MAX OF REPORTED CONCENTRATIONS)	
	0.000001 kg per mg (Merck Index)	
	0 KILOGRAMS DISCHARGED	
DDx		NOT DETECTED (FDR)
	0 YEARS DISCHARGED within DDx Timeline	
	MG/KG (MAX CONCENTRATION)	
	3.785 L per gallon (Merck Index)	
	0.000001 kg per mg (Merck Index)	
	0 KILOGRAMS DISCHARGED	
Dieldrin		NOT DETECTED (FDR)
	0 YEARS DISCHARGED within Dieldrin Timeline	
	MG/KG (MAX CONCENTRATION)	
	3.785 L per gallon (Merck Index)	
	0.000001 kg per mg (Merck Index)	
	0 KILOGRAMS DISCHARGED	
Dioxins/Furans	NONE FOUND IN AVAILABLE DOCUMENTATION	NOT DETECTED (FDR)
	0 YEARS DISCHARGED	
	0 MG/KG (MAX CONCENTRATION)	
	0.000001 kg per mg (Merck Index)	
	0 calc kg COC discharged	
SUMMARY CMASS ESTIMATES:		
	0.00 kg Copper	
	0.00 kg Lead	
	0.37 kg Mercury	
	0.42 kg PAHs (Benzo(a)pyrene Equivalent)	
	0.02 kg PAHs (Other)	
	0.00 kg PCBs	
	0.00 kg DDx	
	0.00 kg Dieldrin	
	0.00 kg Dioxins/Furans	
0.81 MASS (KG) DISCHARGED FROM SURFACE SOIL		

Discharge Calcs	Direct Discharge Information	ASSUMPTIONS, REFERENCES	COMMENTS/NOTES
	4.08 FEET/YEAR AVERAGE PRECIPITATION	Long term average annual precipitation includes floods and hurricane events occurring over time.	Data from Rutgers University.
	15 ACRES - TOTAL SITE AREA (acres) 2.4 ACRES - AFFECTED AREA	Based on the figure in the FDR (Page 2), it appears that the paved, manufacturing operations used 80% of the site, so affected area is estimated as 20% of the site	
	4,046.86 METERS ² /ACRE		
	9,712 METERS ² (AFFECTED AREA)		
	0.0010 METERS/YEAR (ERODED SOIL THICKNESS)	For this estimate, used a surface soil erosion rate of 0.1 mm/year, or 0.004 inches/year.	
	5 METERS ³ /YEAR (ERODED SOIL VOLUME)	VOLUME/YEAR DISCHARGED	
	1974 Year of spill	330 Doremus was operating from 1956-1989 and 352 Doremus was operating from 1965 to 1989 (FDR Page 1). For this pathway, a release occurred in 1972, where nitric acid overflowed from a 20,000 gallon tank car. The ground was covered with soda ash and water and the fire department washed the residue into the Passaic (FDR Page 9).	
	1975 Year of spill	Will conservatively assume 1 year. The 20,000 gallon release likely carved a channel to the Passaic.	
	1 NUMBER YEARS DISCHARGE		
	5 METERS ³ (TOTAL SOIL VOLUME DISCHARGED OVER TIME)		
	2,003 KG/M ³ SOIL DENSITY	Most soils at the Newark site consisted of fine grained, clayey silt with organic matter (PAP-00116565). Used structx.com/Soil_Properties_002.html for density. Used the average of silt and clay min (1506 kg/m3) and max (2499 kg/m3).	
	10,013 KILOGRAMS (TOTAL SOIL DISCHARGED OVER TIME)		
Copper (Cu)	1 YEARS DISCHARGED	Site is located on regional historic fill (FDR page 5) Detected at soil sample location Q-3 (3.5-4 ft bgs) at 110,000 ug/kg (110 ppm); collected 11/21/1990 at the Truck Maintenance Building and Quantum Chemical Areas (PAP-00116914). Selected maximum from shallowest depth. Max concentration 110 mg/kg. HF washed into River by 20,000 gallon acid release and by firehose, which washed all impacted/stained soil into the River	
	110 MG/KG (MAX CONCENTRATION)		
	0.000001 kg per mg (Merck Index)		
	1 KILOGRAMS DISCHARGED		
Lead (Pb)	1 YEARS DISCHARGED	Detected at soil sample location Q-3 (3.5-4 ft bgs) at 7,000 mg/kg; collected 11/21/1990 at the Quantum Chemical Area (PAP-00116914; PAP-00117022). 7,000 mg/kg max concentration.HF washed into River by 20,000 gallon acid release and by firehose, which washed all impacted/stained soil into the River.	
	7000 MG/KG (MAX CONCENTRATION)		
	0.000001 kg per mg (Merck Index)		
	70 KILOGRAMS DISCHARGED		
Mercury (Hg)	1 YEARS DISCHARGED	Detected at soil sample location TMB-2 (4-4.5 ft bgs) at 5.8 mg/kg; collected 11/19/1990 at the Truck Maintenance Building (PAP-00117155). Detected 680 J ug/kg at Q-1 (3.5-4 ft) on 11/21/1990 (PAP-00117156). Selected maximum from shallowest depth.	
	5.8 MG/KG (MAX CONCENTRATION)		
	0.000001 kg per mg (Merck Index)		
	0 KILOGRAMS DISCHARGED		

PAHs (listed in Benzo(a)pyrene Equivalent conversion table)	
1 YEARS DISCHARGED	
6.5 MG/KG (TOTAL PAH AVERAGE CONCENTRATION)	
0.000001 kg per mg (Merck Index)	
0.07 KILOGRAMS DISCHARGED	
PAHs (others detected)	
1 YEARS DISCHARGED	
21 MG/KG (TOTAL PAH MAX CONCENTRATION)	
0.000001 kg per mg (Merck Index)	
0.21 KILOGRAMS DISCHARGED	
PCBs	
YEARS DISCHARGED	
MG/KG (MAX OF REPORTED CONCENTRATIONS)	
0.000001 kg per mg (Merck Index)	
0 KILOGRAMS DISCHARGED	
DDx	
0 YEARS DISCHARGED within DDx Timeline	
MG/KG (MAX CONCENTRATION)	
3.785 L per gallon (Merck Index)	
0.000001 kg per mg (Merck Index)	
0 KILOGRAMS DISCHARGED	
Dieldrin	
0 YEARS DISCHARGED within Dieldrin Timeline	
MG/KG (MAX CONCENTRATION)	
3.785 L per gallon (Merck Index)	
0.000001 kg per mg (Merck Index)	
0 KILOGRAMS DISCHARGED	
Dioxins/Furans	
NONE FOUND IN AVAILABLE DOCUMENTATION	
0 YEARS DISCHARGED	
0 MG/KG (MAX CONCENTRATION)	
0.000001 kg per mg (Merck Index)	
0 calc kg COC discharged	
SUMMARY CMASS ESTIMATES:	
1.10 kg Copper	
70.09 kg Lead	
0.06 kg Mercury	
0.07 kg PAHs (Benzo(a)pyrene Equivalent)	
0.21 kg PAHs (Other)	
0.00 kg PCBs	
0.00 kg DDx	
0.00 kg Dieldrin	
0.00 kg Dioxins/Furans	
71.52 MASS (KG) DISCHARGED	

Total concentration of PAH compounds for Benzo(a)pyrene Equivalent
<https://floridadep.gov/waste/petroleum-restoration/documents/benzo-pyrene-equivalents-conversion-table-one-sample>.

PAP-00116913

NOT DETECTED (FDR)

NOT DETECTED (FDR)

NOT DETECTED (FDR)

NOT DETECTED (FDR)

Selected maximum from shallowest depth. PAP-00116959

Contaminant	Concentration (mg/kg)	Toxic Equivalency Factor	Benzo(a)pyrene Equivalents
Benzo(a)pyrene	4.500	1.0	4.5000
Benzo(a)anthracene	4.500	0.1	0.4500
Benzo(b)fluoranthene	4.600	0.1	0.4600
Benzo(k)fluoranthene	4.000	0.01	0.0400
Chrysene	5.100	0.001	0.0051
Dibenz(a,h)anthracene	0.830	1.0	0.8300
Indeno(1,2,3-cd)pyrene	2.500	0.1	0.2500
DE Residential = 0.1 mg/kg; DE Industrial = 0.7 mg/kg			
Total Benzo(a)pyrene Equivalents =			6.5

Essex Chemical Corporation

330 & 352 Doremus Avenue

Newark

NJ

07105

Facility BS	CUF	CUF_Category	CUF_NOTES	COF	COF_NOTES	Facillty Adjusted BS
8.412E-8	10.0%	Periodic Noncompliacne	Criminal charges were filed against Essex in United States District Court, District of New Jersey on July 11, 1974, arising from a 1972 release to the Passaic River from Essex (PAS-00062740). As described by a PVSC inspector, a 20,000 gallon tank car with oleum and nitric acid overflowed through a vent pipe due to internal pressure. The ground was covered with soda ash and water to neutralize the overflow, and the fire department then washed the residue into the Passaic River (PAS-00062745). New Jersey State Department of Health issued “pollution abatement orders” to Essex in 1969 (PAP-00140967). No further information was available.	-20.0%	-20% CPG/SPG member - Continuous provision of funding and participation in PRP Group(s) actions to cooperate with governmental/regulatory entities to address environmental or public harm created by own activities	7.571E-8

AP_ABS

7.571E-8

Essex Chemical Corporation

330 & 352 Doremus Avenue

Newark

NJ

07105

Facility BS	CUF	CUF_Category	CUF_NOTES	COF	COF_NOTES	Facillty Adjusted BS
7.478E-5	10.0%	Periodic Noncompliacne	Criminal charges were filed against Essex in United States District Court, District of New Jersey on July 11, 1974, arising from a 1972 release to the Passaic River from Essex (PAS-00062740). As described by a PVSC inspector, a 20,000 gallon tank car with oleum and nitric acid overflowed through a vent pipe due to internal pressure. The ground was covered with soda ash and water to neutralize the overflow, and the fire department then washed the residue into the Passaic River (PAS-00062745). New Jersey State Department of Health issued “pollution abatement orders” to Essex in 1969 (PAP-00140967). No further information was available.	-20.0%	-20% CPG/SPG member - Continuous provision of funding and participation in PRP Group(s) actions to cooperate with governmental/regulatory entities to address environmental or public harm created by own activities	6.731E-5

AP_ABS

6.731E-5

Allocator's Determinations Regarding Legal Defenses Raised by Allocation Parties

ESSEX CHEMICAL

Essex argues that it received a partial release of liability from Occidental Chemical (see attached), in the Maxus bankruptcy, along with 41 other parties. The releasing parties explained the rationale for providing this release in that proceeding as follows: "The debtors sought to eliminate those parties that (a) appeared to either be de minimis contributors or (b) had previously contributed to the investigation and the remediation costs in amounts roughly proportionate to their share of liability." Maxus bankruptcy docket no. 1232 at 24, filed April 19, 2017.

ALLOCATOR'S DETERMINATION – Though I have not had the opportunity to review the underlying settlement document and other potentially relevant facts associated with the release provided by OCC, assuming its validity, it is apparent that there is a high likelihood of success in any action against OCC to enforce the release. Given OCC's lack of participation in the allocations process, however, the Allocator does not believe that it is appropriate to account for the amount of any such release in the assignment of allocated shares. Rather, the Allocator notes the existence of the release and recommends that it be taken into account in determining the appropriate amount of any future settlement with EPA.

Allocation Facility Cmass Calculation

Everett Smith Group	20 Bruen Street	Newark	NJ	07105
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Constituent Of Concern (COC)	Overland, Fate & Transport C%	Dmass Overland, Fate & Transport	PrePVSC C%	Dmass PrePVSC	PVSC C%	Dmass PVSC	Direct Discharge C%	Dmass Direct Discharge	COC Total Pathway Cmass	COC A%	COC Historic CMass
Copper	100.00%	-	100.00%	-	10.03%	-	100.00%	-	0	1.018817E-2	0
Lead	100.00%	-	100.00%	-	10.03%	-	100.00%	-	0	1.018817E-2	0
Mercury	100.00%	-	100.00%	-	10.03%	-	100.00%	-	0	1.018817E-2	0
HPAHs	100.00%	-	100.00%	-	10.03%	-	100.00%	-	0	1.018817E-2	0
LPAHs	100.00%	-	100.00%	-	10.03%	-	100.00%	-	0	1.018817E-2	0
PCBs	100.00%	-	100.00%	-	10.03%	-	100.00%	-	0	1.018817E-2	0
DDx	100.00%	-	100.00%	-	10.03%	-	100.00%	-	0	1.018817E-2	0
Dieldrin	100.00%	-	100.00%	-	10.03%	-	100.00%	-	0	1.018817E-2	0
Dioxins_Furans	100.00%	-	100.00%	-	10.03%	-	100.00%	-	0	1.018817E-2	0

Everett Smith Group

20 Bruen Street

Newark

NJ

07105

Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	COC Historic CMass	COC Relative Contribution	COC Base Score
Copper	0.69	2,100,000.00	0	0	0
Lead	0.01	3,200,000.00	0	0	0
Mercury	0.95	42,000.00	0	0	0
HPAHs	0.05	240,000.00	0	0	0
LPAHs	0.01	170,000.00	0	0	0
PCBs	12.87	26,000.00	0	0	0
DDx	1.37	27,000.00	0	0	0
Dieldrin	0.13	390.00	0	0	0
Dioxins_Furans	83.92	38.00	0	0	0

Allocation Facility COC Base Scores - Alternative Calulcation

Everett Smith Group	20 Bruen Street	Newark	NJ	07105
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Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	Total Cmass (TCmass)	Total OS COC ACmass	COC %	COC Historic CMass	Facility OS COC Cmass	COC Relative Responsibility	COC Base Score
Copper	0.69	2,100,000.00	276,960.25	2,097,178.28	0	0	0	0	0
Lead	0.01	3,200,000.00	288,577.67	3,197,059.92	0	0	0	0	0
Mercury	0.95	42,000.00	4,322.53	41,955.96	0	0	0	0	0
HPAHs	0.05	240,000.00	4,346,388.50	195,718.24	0	0	0	0	0
LPAHs	0.01	170,000.00	3,012,835.14	139,304.72	0	0	0	0	0
PCBs	12.87	26,000.00	20,066.54	25,795.56	0	0	0	0	0
DDx	1.37	27,000.00	2,516.93	26,974.36	0	0	0	0	0
Dieldrin	0.13	390.00	1.27	389.99	0	0	0	0	0
Dioxins_Furans	83.92	38.00	3,729.82	0.00	0	0	0	0	0

Facility Bypass Information

Everett Smith Group	20 Bruen Street	Newark	NJ	07105
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Item	Bypass Name	Bypass Type	Time %	Flow %	Bypass Notes
1	City Dock	CSO	0.11%	61.80%	
2	City Dock	Bypass	9.96%	100.00%	

Discharge Calcs	POTW Discharge Information	COMMENTS/NOTES
	gal discharged per day/week/month	Leather Tannery
	# hours/per day discharged	No information on flows or COC discharges
5	#days/week discharged	Facility would have discharged to the PVSC by the City Dock CSO
52	#weeks/yr discharged	S. Lange Expert Report, FDR
88,441,160	calc gal/yr discharge	
1937	Yr Ops started	
1939	Yr Ops ceased	
2.5	calc #yrs facility operated	PAP-00000053, PAS-00032775
Copper (Cu)		
2.5	#yrs facility discharged	S. Lange Expert Report, FDR
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Lead (Pb)		
2.5	#yrs facility discharged	S. Lange Expert Report, FDR
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Mercury (Hg)		
2.5	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
HPAHs		
2.5	#yrs facility discharged	
-	calc mg/L O&G	
10%	% O&G that is considered PAHs	
60%	% COC in O&G considered as PAHs	
-	calc mg/L HPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
LPAHs		
2.5	#yrs facility discharged	
-	calc mg/L O&G	
10%	% O&G that is considered PAHs	
40%	% COC in O&G considered as PAHs	
-	calc mg/L LPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
PCBs		
3.0	#yrs facility discharged within PCBs Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
DDx		
0	#yrs facility discharged within DDx Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dieldrin		
-10	#yrs facility discharged within Dieldrin Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxins/Furans		
3	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4-D		
-6	#yrs facility discharged within 2,4-D Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,5-T		
-5	#yrs facility discharged within 2,4,5-T Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,6-TCP		
-10	#yrs facility discharged within 2,4,6-TCP Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Summary DMassCOC for POTW:		
-	kg Copper	
-	kg Lead	
-	kg Mercury	
-	kg HPAHs	
-	kg LPAHs	
-	kg PCBs	
-	kg DDx	
-	kg Dieldrin	

-	kg Dioxins/Furans	

Everett Smith Group

20 Bruen Street			Newark	NJ	07105					
Facility BS	CUF	CUF_Category		CUF_NOTES		COF	COF_NOTES		Facility Adjusted BS	
0	0.0%	Historically Compliant or No Evidence	No information on violations or sloppy practices was identified in the available file material.		0.0%	0% Cooperation with conduct of allocation and requests for related information		0		
									AP_ABS	0

Facility Base Scores, Culpability Factor, Cooperation Factor and Adjusted Base Scores - Allocation Calculation

Everett Smith Group

20 Bruen Street		Newark	NJ	07105					
Facility BS	CUF	CUF_Category		CUF_NOTES		COF	COF_NOTES		Facillty Adjusted BS
0	0.0%	Historically Compliant or	No Evidence	No information on violations or sloppy practices was identified in the available file material.		0.0%	0% Cooperation with conduct of allocation and requests for related information		0
									AP_ABS
									0

Allocator's Determinations Regarding Legal Defenses Raised by Allocation Parties

EVERETT SMITH GROUP

Everett Smith Group states that Blanchard Bro. & Lane, Inc. was incorporated on June 29, 1937 and operated at 20 Bruen Street until sometime in 1939. (PAP-00000007; PAS-00032775). The property was sold in December 1941. (PAP-00000058). Eighteen years later, in 1959, 100% of Blanchard's stock was purchased by Eagle Ottawa Leather Company ("Eagle Ottawa"). (PAP-00432364 thru PAP-00432365). Eagle Ottawa maintained Blanchard as a wholly owned subsidiary until February 24, 1965 when it caused Blanchard to be dissolved. (PAP-00432366 thru PAP-00432367; PAP-00432369). In anticipation of such dissolution, Eagle Ottawa assumed on August 31, 1964 all "fixed or contingent" debts, obligations and liabilities of Blanchard existing as of that date. (PAP-00432368). There was no merger of the Blanchard and Eagle Ottawa Leather Company corporate entities. (PAP-00432364 thru PAP-00432369). There was no assumption of Blanchard's debts, obligations, or liabilities that did not exist on August 31, 1964. Eagle Ottawa Leather Company later merged with Albert Trostel & Sons Company. (PAS-0003297 thru PAS-0003298). ESG purchased the stock of Albert Trostel & Sons Company.

Eagle Ottawa's assumption of Blanchard's "contingent" debts, obligations, and liabilities in 1964 did not include CERCLA liabilities that might otherwise have been created in 1981 by CERCLA, a full 17 years later. The Court of Appeals for the Third Circuit interpreted the meaning of "contingent" liabilities in an analogous case addressing whether CERCLA liability had been discharged in a bankruptcy proceeding. *Matter of Reading Co.*, 115 F.3d 1111, 1122 (3d Cir. 1997) (abrogated on other grounds by *E.I. DuPont De Nemours & Co. v. United States*, 460 F.3d 515, 518 (3d Cir.2006)). In that case, Reading Co. emerged from a bankruptcy proceeding in 1981 with a "consummation order" granting it protection from all pre-consummation debts and liabilities. *Matter of Reading Co.*, 115 F.3d at 1114. Sixteen years later, Consolidated Rail Corporation ("Conrail") commenced a contribution action seeking recovery of cleanup costs from Reading Co. for pre-consummation releases of hazardous substances. *Id.* Reading Co. argued that the potential CERCLA liability was a pre-consummation claim for which Reading Co. was protected by the bankruptcy court's consummation order. *Id.* at 1121. Under the bankruptcy law, claims included "contingent" debts, liabilities and obligations. *Id.* at 1121-1123. The Third Circuit held that the potential for CERCLA liability had not matured to the level of a claim, or even a contingent claim, before CERCLA was enacted in 1980. *Id.* In an earlier case, the Third Circuit had succinctly noted:

[I]t was not until the passage of CERCLA that a legal relationship was created between the petitioners and PCC relevant to the petitioners' potential causes of action such that an interest could flow. Because this legal relationship did not evolve until after the Consummation Date, the petitioners did not have contingent claims against PCTC. In *re Penn Central Trans. Co.*, 944 F.2d 164, 167-168 (3d Cir. 1991). Thus, there was no actual or contingent CERCLA debt, obligation, or liability to be assumed by Eagle Ottawa in 1964 when the company was dissolved.

ALLOCATOR'S DETERMINATION – Though the Everett Smith Group makes an argument regarding its lack of successor liability, the Allocator does not believe that Everett has a substantial likelihood of success at litigation based on the abrogated bankruptcy case cited as the

Allocation Facility Cmass Calculation

Foundry Street Corporation (Foundry Street Complex)	185 Foundry Street	Newark	NJ	07105
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Constituent Of Concern (COC)	Overland, Fate & Transport C%	Dmass Overland, Fate & Transport	PrePVSC C%	Dmass PrePVSC	PVSC C%	Dmass PVSC	Direct Discharge C%	Dmass Direct Discharge	COC Total Pathway Cmass	COC A%	COC Historic CMass
Copper	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0
Lead	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0
Mercury	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0
HPAHs	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0
LPAHs	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0
PCBs	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0
DDx	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0
Dieldrin	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0
Dioxins_Furans	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0

Foundry Street Corporation (Foundry Street Complex)

185 Foundry Street

Newark

NJ

07105

Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	COC Historic CMass	COC Relative Contribution	COC Base Score
Copper	0.69	2,100,000.00	0	0	0
Lead	0.01	3,200,000.00	0	0	0
Mercury	0.95	42,000.00	0	0	0
HPAHs	0.05	240,000.00	0	0	0
LPAHs	0.01	170,000.00	0	0	0
PCBs	12.87	26,000.00	0	0	0
DDx	1.37	27,000.00	0	0	0
Dieldrin	0.13	390.00	0	0	0
Dioxins_Furans	83.92	38.00	0	0	0

Allocation Facility COC Base Scores - Alternative Calulcation

Foundry Street Corporation (Foundry Street Complex)	185 Foundry Street	Newark	NJ	07105
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Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	Total Cmass (TCmass)	Total OS COC ACmass	COC %	COC Historic CMass	Facility OS COC Cmass	COC Relative Responsibility	COC Base Score
Copper	0.69	2,100,000.00	276,960.25	2,097,178.28	0	0	0	0	0
Lead	0.01	3,200,000.00	288,577.67	3,197,059.92	0	0	0	0	0
Mercury	0.95	42,000.00	4,322.53	41,955.96	0	0	0	0	0
HPAHs	0.05	240,000.00	4,346,388.50	195,718.24	0	0	0	0	0
LPAHs	0.01	170,000.00	3,012,835.14	139,304.72	0	0	0	0	0
PCBs	12.87	26,000.00	20,066.54	25,795.56	0	0	0	0	0
DDx	1.37	27,000.00	2,516.93	26,974.36	0	0	0	0	0
Dieldrin	0.13	390.00	1.27	389.99	0	0	0	0	0
Dioxins_Furans	83.92	38.00	3,729.82	0.00	0	0	0	0	0

Facility Bypass Information

Foundry Street Corporation (Foundry Street Complex)	185 Foundry Street	Newark	NJ	07105
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Item	Bypass Name	Bypass Type	Time %	Flow %	Bypass Notes
1	Newark Bay	Bypass	0.00%	0.00%	Did not discharge waste into the Passaic river

Foundry Street Corporation (Foundry Street Complex)

185 Foundry Street			Newark	NJ	07105					
Facility BS	CUF	CUF_Category		CUF_NOTES			COF	COF_NOTES		Facility Adjusted BS
5.052E-7	0.0%	Historically Compliant or	No Evidence	No information on violations or sloppy practices was identified in the available file material.			20.0%	20% Failed to participate in conduct of allocation as offered by EPA		6.063E-7

For Public Disclosure by Consent of the Participating Allocation Parties and EPA (Fall 2022)

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Facility Base Scores, Culpability Factor, Cooperation Factor and Adjusted Base Scores - Allocation Calculation										
Foundry Street Corporation (Foundry Street Complex)										
185 Foundry Street		Newark	NJ	07105						
Facility BS	CUF	CUF_Category		CUF_NOTES		COF	COF_NOTES		Facillty Adjusted BS	
6.490E-5	0.0%	Historically Compliant or No Evidence		No information on violations or sloppy practices was identified in the available file material.		20.0%	20% Failed to participate in conduct of allocation as offered by EPA		7.788E-5	
									AP_ABS	7.788E-5

Allocation Facility Cmass Calculation

Franklin Burlington Plastics Inc.	113 Passaic Avenue	Kearny	NJ	07032
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Constituent Of Concern (COC)	Overland, Fate & Transport C%	Dmass Overland, Fate & Transport	PrePVSC C%	Dmass PrePVSC	PVSC C%	Dmass PVSC	Direct Discharge C%	Dmass Direct Discharge	COC Total Pathway Cmass	COC A%	COC Historic CMass
Copper	100.00%	141.4	100.00%	-	0.00%	-	100.00%	16.6	157.98	1.018817E-2	1.61
Lead	100.00%	564.71	100.00%	-	0.00%	-	100.00%	2.8	567.53	1.018817E-2	5.78
Mercury	100.00%	1.97	100.00%	-	0.00%	-	100.00%	-	1.97	1.018817E-2	0.02
HPAHs	100.00%	59.79	100.00%	-	0.00%	-	100.00%	221.4	281.18	1.018817E-2	2.86
LPAHs	100.00%	494.35	100.00%	-	0.00%	-	100.00%	147.6	641.94	1.018817E-2	6.54
PCBs	100.00%	0.46	100.00%	-	0.00%	-	100.00%	-	0.46	1.018817E-2	0
DDx	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0
Dieldrin	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0
Dioxins_Furans	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0

Franklin Burlington Plastics Inc.

113 Passaic Avenue

Kearny

NJ

07032

Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	COC Historic CMass	COC Relative Contribution	COC Base Score
Copper	0.69	2,100,000.00	1.61	7.664E-7	5.288E-7
Lead	0.01	3,200,000.00	5.78	1.807E-6	1.807E-8
Mercury	0.95	42,000.00	0.02	4.779E-7	4.540E-7
HPAHs	0.05	240,000.00	2.86	1.194E-5	5.968E-7
LPAHs	0.01	170,000.00	6.54	3.847E-5	3.847E-7
PCBs	12.87	26,000.00	0	1.803E-7	2.320E-6
DDx	1.37	27,000.00	0	0	0
Dieldrin	0.13	390.00	0	0	0
Dioxins_Furans	83.92	38.00	0	0	0

Allocation Facility COC Base Scores - Alternative Calulcation

Franklin Burlington Plastics Inc.	113 Passaic Avenue	Kearny	NJ	07032
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Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	Total Cmass (TCmass)	Total OS COC ACmass	COC %	COC Historic CMass	Facility OS COC Cmass	COC Relative Responsibility	COC Base Score
Copper	0.69	2,100,000.00	276,960.25	2,097,178.28	5.704E-4	1.61	1,196.23	5.704E-4	3.936E-4
Lead	0.01	3,200,000.00	288,577.67	3,197,059.92	1.967E-3	5.78	6,287.47	1.967E-3	1.967E-5
Mercury	0.95	42,000.00	4,322.53	41,955.96	4.558E-4	0.02	19.12	4.558E-4	4.330E-4
HPAHs	0.05	240,000.00	4,346,388.50	195,718.24	6.469E-5	2.86	12.66	6.469E-5	3.235E-6
LPAHs	0.01	170,000.00	3,012,835.14	139,304.72	2.131E-4	6.54	29.68	2.131E-4	2.131E-6
PCBs	12.87	26,000.00	20,066.54	25,795.56	2.292E-5	0	0.59	2.292E-5	2.950E-4
DDx	1.37	27,000.00	2,516.93	26,974.36	0	0	0	0	0
Dieldrin	0.13	390.00	1.27	389.99	0	0	0	0	0
Dioxins_Furans	83.92	38.00	3,729.82	0.00	0	0	0	0	0

Facility Bypass Information

Franklin Burlington Plastics Inc.	113 Passaic Avenue	Kearny	NJ	07032
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Item	Bypass Name	Bypass Type	Time %	Flow %	Bypass Notes
1	Newark Bay	Bypass	0.00%	0.00%	Did not discharge waste into the Passaic river

Discharge Calcs	POTW Discharge Information	COMMENTS/NOTES
23,500	gal discharged per day/week/month	PARS RIR, 2016 - plant was connect to sewer system since 1946
	# hours/per day discharged	Process Flow diagram: 2500 gpd Sanitary and 21000gpd boilers to PVSC
5	#days/week discharged	
52	#weeks/yr discharged	
-	calc gal/yr discharge	
1976	Yr Ops started	
2010	Yr Ops ceased	
34	calc #yrs facility operated	
Copper (Cu)		
34	#yrs facility discharged	Sampling data 1990, 2008, 2010 and Permit for O&G
0.0365	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Lead (Pb)		
34	#yrs facility discharged	Sampling data 1990, 2008, 2010 and Permit for O&G
0.0304	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Mercury (Hg)		
34	#yrs facility discharged	
-	calc mg/L COC discharged	NON DETECT
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
HPAHs		
34	#yrs facility discharged	Permit Limit
10.00	calc mg/L O&G	
10%	% O&G that is considered PAHs	
60%	% PAHs considered as HPAHs	
0.60	calc mg/L HPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
LPAHs		
34	#yrs facility discharged	Permit Limit
10.00	calc mg/L O&G	
10%	% O&G that is considered PAHs	
40%	% PAHs considered as LPAHs	
0.40	calc mg/L LPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
PCBs		
2	#yrs facility discharged within PCBs Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
DDx		
-3	#yrs facility discharged within DDx Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dieldrin		
12	#yrs facility discharged within Dieldrin Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxins/Furans		
34	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4-D		
35	#yrs facility discharged within 2,4-D Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,5-T		
10	#yrs facility discharged within 2,4,5-T Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,6-TCP		
0	#yrs facility discharged within 2,4,6-TCP Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Summary DMassCOC for POTW:		
-	kg Copper	
-	kg Lead	
-	kg Mercury	
-	kg HPAHs	
-	kg LPAHs	
-	kg PCBs	
-	kg DDx	
-	kg Dieldrin	
-	kg Dioxins/Furans	

Discharge Calcs	Direct Discharge Information	COMMENTS/NOTES
	# hours/day discharged	1976-2004 Direct discharge to Passaic River via Permit (NJPDES)
5	# days/week discharged	1200 gpd (PAP-00057219)
50	# weeks/yr discharged	PAP-CONF-00010094
4,289,500	# gals/yr directly discharged	PAP-00057219
4.08	ft; 30yr average annual precipitation per Rutgers information	Credit for NJPDES Permit oil and grease discharge limit of 10 mg/l
	acres	
43,560	ft2 per acre	
	acres	
50%	Percent Precip to River	
1976	Yr Ops started	
2004	Yr Ops ceased	
28	calc #yrs facility operated	
Copper (Cu)		
28	#yrs facility discharged	
0.0365	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
16.58	calc kg COC discharged	
Lead (Pb)		
28	#yrs facility discharged	
0.0062	calc mg/L COC discharged	PAP-00337332
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
2.82	calc kg COC discharged	
Mercury (Hg)		
28	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
HPAHs		
28	#yrs facility discharged	
10.00	calc mg/L O&G	
10%	% O&G that is considered PAHs	
60%	% PAHs considered as HPAHs	
0.60	calc mg/L HPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
272.76	calc kg COC discharged	
LPAHs		
28	#yrs facility discharged	
10.00	calc mg/L O&G	
10%	% O&G that is considered PAHs	
40%	% PAHs considered as LPAHs	
0.40	calc mg/L LPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
181.84	calc kg COC discharged	
PCBs		
2	#yrs facility discharged within PCBs Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
DDx		
-3	#yrs facility discharged within DDx Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dieldrin		
12	#yrs facility discharged within Dieldrin Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxins/Furans		
28	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4-D		
29	#yrs facility discharged within 2,4-D Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,5-T		
10	#yrs facility discharged within 2,4,5-T Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,6-TCP		
0	#yrs facility discharged within 2,4,6-TCP Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Summary DMassCOC for Direct Discharge:		
16.58	kg Copper	
2.82	kg Lead	
-	kg Mercury	
221.39	kg HPAHs	
147.59	kg LPAHs	
-	kg PCBs	
-	kg DDx	
-	kg Dieldrin	
-	kg Dioxins/Furans	

DISCHARGE CALCULATIONS	DIRECT DISCHARGE INFORMATION	ASSUMPTIONS, REFERENCES	COMMENTS/NOTES
	4.08 FEET/YEAR AVERAGE PRECIPITATION	Long term average annual precipitation includes floods and hurricane events occurring over time.	Data from Rutgers University.
	8.44 ACRES - TOTAL SITE AREA (acres)	FDR, page 1; confirmed with Google Earth	
	6 ACRES - AFFECTED AREA	A 55,000-square foot production plant and 840-square foot boiler house were located at the Site. (PAP-00056121) Covering approximatley 1.2 acres of the 8.44 acre site.	
	4,046.86 METERS ² /ACRE	CONVERSION TO METERS	
	24,281 METERS ² (AFFECTED AREA)		
	0.0001 METERS/YEAR (ERODED SOIL THICKNESS)	For this estimate, used a surface soil erosion rate of 0.1 mm/year, or 0.004 inches/year.	
	2 METERS ³ /YEAR (ERODED SOIL VOLUME)	VOLUME/YEAR DISCHARGED to Passaic.	
	1976 Year site operations began	Franklin Burlington Plastics or its predecessor manufactured plastics at the Site from approximately 1976 to 2010 (PAP-00056120).	
	2017 Year site ownership ceased	On May 22, 2017, Urban Renewal, LLC acquired the site from Franklin-Burlington Plastics (FDR page 4; PAP-00338807).	Site manufacturing operations ceased in 2010 and all buildings were razed in April 2014 (PAP-00056121).
	41 NUMBER YEARS DISCHARGE		
	100 METERS ³ (TOTAL SOIL VOLUME DISCHARGED OVER TIME)		
	2,251 KG/M ³ SOIL DENSITY	The fill was comprised of silty sand, course sand, cinders, gravel, brick fragments, rod, wood pieces, glass, ceramics and scrap metal. (PAP-00056120). Bulk density range 2002 KG/M ³ to 2499 KG/M ³ , so use average. (http://structx.com/Soil_Properties_002.html)	
	224,093 KILOGRAMS (TOTAL SOIL DISCHARGED OVER TIME)		
Copper (Cu)	41 YEARS DISCHARGED 631 MG/KG (MAX CONCENTRATION)	Max concentration at maximum shallow sample, RL-3 (1.6-2.1 ft bgs) (PAP-00056226).	
	0.000001 kg per mg (Merck Index)		
	141 KILOGRAMS DISCHARGED		
Lead (Pb)	41 YEARS DISCHARGED 2,520 MG/KG MAX CONCENTRATION)	Lead compounds were used as a PVC stabilizer in electrical insulators. (PAP-00338386-87).	
	0.000001 kg per mg (Merck Index)	Max concentration at the maximum shallow sample, NJEP-S6 (0.0-0.5 ft bgs) (PAP-00337333)	
	565 KILOGRAMS DISCHARGED		

DISCHARGE CALCULATIONS	DIRECT DISCHARGE INFORMATION	ASSUMPTIONS, REFERENCES	COMMENTS/NOTES
Mercury (Hg)	41 YEARS DISCHARGED 8.8 MG/KG (MAX CONCENTRATION)	Max concentration of mercury from Table 8; soil from AOC 12 - Fill Area, sample HF-7 collected at 5-5.5 ft bgs (PAP-00056224). Due to density of mercury, it is not expected to remain on the surface.	
	0.000001 kg per mg (Merck Index) 2 KILOGRAMS DISCHARGED		
PAHs (listed in Benzo(a)pyrene Equivalent conversion table)		Total concentration of PAH compounds for Benzo(a)pyrene Equivalent https://floridadep.gov/waste/petroleum-restoration/documents/benzo-pyrene-equivalents-conversion-table-one-sample .	
	41 YEARS DISCHARGED 266.8 MG/KG (TOTAL PAH MAX CONCENTRATION)		
	0.000001 kg per mg (Merck Index) 60 KILOGRAMS DISCHARGED		
PAHs (others detected)		LMW PAH concentrations from soil sample SB13/A collected at 0.5-1 ft January 2002 (PAP-00056325-6).	
	41 YEARS DISCHARGED 2,206 MG/KG (TOTAL PAH MAX CONCENTRATION)		
	0.000001 kg per mg (Merck Index) 494 KILOGRAMS DISCHARGED		
PCBs			
	41 YEARS DISCHARGED 2.05 MG/KG (MAX OF REPORTED CONCENTRATIONS)	Max concentration based on maximum shallow sample from this site, TS-24 (0.0-0.5 ft bgs) (PAP-00056220)	
	0.000001 kg per mg (Merck Index) 0 KILOGRAMS DISCHARGED		
DDx			
	41 YEARS DISCHARGED within DDx Timeline MG/KG (MAX CONCENTRATION)	NONE REPORTED	
	0.000001 kg per mg (Merck Index) 0 KILOGRAMS DISCHARGED		
Dieldrin			
	41 YEARS DISCHARGED MG/KG (MAX CONCENTRATION)	NONE REPORTED	
	0.000001 kg per mg (Merck Index) 0 KILOGRAMS DISCHARGED		
Dioxins/Furans			
	41 YEARS DISCHARGED MG/KG (MAX CONCENTRATION)		
	0.000001 kg per mg (Merck Index) 0 KILOGRAMS DISCHARGED		
SUMMARY CMASS ESTIMATES:			
141.40 kg Copper			
564.71 kg Lead			
1.97 kg Mercury			
59.79 kg PAHs (Benzo(a)pyrene Equivalent)			
494.35 kg PAHs (Other)			
0.46 kg PCBs			
0.00 kg DDx			
0.00 kg Dieldrin			
0.00 kg Dioxins/Furans			
1,262.69 TOTAL MASS (KG) DISCHARGED FROM SURFACE SOIL			

Contaminant	Concentration (mg/kg)	Toxic Equivalency Factor	Benzo(a)pyrene Equivalents
Benzo(a)pyrene	190.000	1.0	190.0000
Benzo(a)anthracene	290.000	0.1	29.0000
Benzo(b)fluoranthene	270.000	0.1	27.0000
Benzo(k)fluoranthene	97.000	0.01	0.9700
Chrysene	240.000	0.001	0.2400
Dibenz(a,h)anthracene	12.000	1.0	12.0000
Indeno(1,2,3-cd)pyrene	76.000	0.1	7.6000
DE Residential = 0.1 mg/kg; DE Industrial = 0.7 mg/kg			
Total Benzo(a)pyrene Equivalents =			266.8

Facility Base Scores, Culpability Factor, Cooperation Factor and Adjusted Base Scores - Protocol Calculation

Franklin Burlington Plastics Inc.

113 Passaic Avenue		Kearny	NJ	07032				
Facility BS	CUF	CUF_Category	CUF_NOTES		COF	COF_NOTES	Facillty Adjusted BS	
4.302E-6	10.0%	Periodic Noncompliacne	According to the 1990 EPA SI, at an unknown date Franklin Plastics received a Notice of Violation for oily spills along the eastern wall of the Production Plant (PAP-00337303). In 1984, there were numerous violations that included spillage, discolored soils, oil saturated soils, improperly labeled drums, unmarked drums, disposal of drums, and other storage of material concerns (PAP-00337237). NJDEP Division of Water Resources, inspected the facility in July 1985 and gave it an “unacceptable” rating due to permit limit exceedances of temperature, chromium, and zinc concentrations (PAP-00057085-89;). A 1980 EPA Potential Hazardous Waste Site Identification and Preliminary Assessment form identified an open dump, landfill, drums, aboveground tanks, a railroad, and other hazardous major site activities. Overturned drums potentially contaminating the soil were noted onsite, as well as “many” 55-gallon drums that were leaking and overflowing. An August 1, 1984 Investigative Report for Franklin Plastics Corporation noted an oil-like substance that heavily contaminated the southwestern corner inside of the Production Plant. Two spills being cleaned by the workers were noted on the ground during the inspection in an area where a liquid plasticizer was discharged from tank trailers into pipes for storage (PAP-00338659). During sampling "spill and vegetative stress area near the air pollution control units" as noted and another sample was collected where "the soils were covered with a silvery material"		-20.0%	-20% CPG/SPG member - Continuous provision of funding and participation in PRP Group(s) actions to cooperate with governmental/regulatory entities to address environmental or public harm created by own activities	3.872E-6	

Facility Base Scores, Culpability Factor, Cooperation Factor and Adjusted Base Scores - Allocation Calculation

Franklin Burlington Plastics Inc.

113 Passaic Avenue		Kearny	NJ	07032			
Facility BS	CUF	CUF_Category	CUF_NOTES		COF	COF_NOTES	Facillty Adjusted BS
1.147E-3	10.0%	Periodic Noncompliacne	According to the 1990 EPA SI, at an unknown date Franklin Plastics received a Notice of Violation for oily spills along the eastern wall of the Production Plant (PAP-00337303). In 1984, there were numerous violations that included spillage, discolored soils, oil saturated soils, improperly labeled drums, unmarked drums, disposal of drums, and other storage of material concerns (PAP-00337237). NJDEP Division of Water Resources, inspected the facility in July 1985 and gave it an “unacceptable” rating due to permit limit exceedances of temperature, chromium, and zinc concentrations (PAP-00057085-89;). A 1980 EPA Potential Hazardous Waste Site Identification and Preliminary Assessment form identified an open dump, landfill, drums, aboveground tanks, a railroad, and other hazardous major site activities. Overturned drums potentially contaminating the soil were noted onsite, as well as “many” 55-gallon drums that were leaking and overflowing. An August 1, 1984 Investigative Report for Franklin Plastics Corporation noted an oil-like substance that heavily contaminated the southwestern corner inside of the Production Plant. Two spills being cleaned by the workers were noted on the ground during the inspection in an area where a liquid plasticizer was discharged from tank trailers into pipes for storage (PAP-00338659). During sampling "spill and vegetative stress area near the air pollution control units" as noted and another sample was collected where "the soils were covered with a silvery material"		-20.0%	-20% CPG/SPG member - Continuous provision of funding and participation in PRP Group(s) actions to cooperate with governmental/regulatory entities to address environmental or public harm created by own activities	1.032E-3

Allocation Facility Cmass Calculation

Garfield Molding Company, Inc.	10 Midland Avenue	Wallington	NJ	07057
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Constituent Of Concern (COC)	Overland, Fate & Transport C%	Dmass Overland, Fate & Transport	PrePVSC C%	Dmass PrePVSC	PVSC C%	Dmass PVSC	Direct Discharge C%	Dmass Direct Discharge	COC Total Pathway Cmass	COC A%	COC Historic CMass
Copper	100.00%	456.73	100.00%	-	2.32%	-	100.00%	80.3	537.06	1.018817E-2	5.47
Lead	100.00%	130.39	100.00%	-	2.32%	-	100.00%	67.1	197.46	1.018817E-2	2.01
Mercury	100.00%	0.44	100.00%	-	2.32%	-	100.00%	-	0.44	1.018817E-2	0
HPAHs	100.00%	0.95	100.00%	-	2.32%	-	100.00%	2,418.6	2,419.56	1.018817E-2	24.65
LPAHs	100.00%	5.58	100.00%	-	2.32%	-	100.00%	1,612.4	1,617.99	1.018817E-2	16.48
PCBs	100.00%	-	100.00%	-	2.32%	-	100.00%	-	0	1.018817E-2	0
DDx	100.00%	-	100.00%	-	2.32%	-	100.00%	-	0	1.018817E-2	0
Dieldrin	100.00%	-	100.00%	-	2.32%	-	100.00%	-	0	1.018817E-2	0
Dioxins_Furans	100.00%	-	100.00%	-	2.32%	-	100.00%	-	0	1.018817E-2	0

Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	COC Historic CMass	COC Relative Contribution	COC Base Score
Copper	0.69	2,100,000.00	5.47	2.606E-6	1.798E-6
Lead	0.01	3,200,000.00	2.01	6.287E-7	6.287E-9
Mercury	0.95	42,000.00	0	1.067E-7	1.014E-7
HPAHs	0.05	240,000.00	24.65	1.027E-4	5.136E-6
LPAHs	0.01	170,000.00	16.48	9.697E-5	9.697E-7
PCBs	12.87	26,000.00	0	0	0
DDx	1.37	27,000.00	0	0	0
Dieldrin	0.13	390.00	0	0	0
Dioxins_Furans	83.92	38.00	0	0	0

Allocation Facility COC Base Scores - Alternative Calulcation

Garfield Molding Company, Inc.	10 Midland Avenue	Wallington	NJ	07057
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Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	Total Cmass (TCmass)	Total OS COC ACmass	COC %	COC Historic CMass	Facility OS COC Cmass	COC Relative Responsibility	COC Base Score
Copper	0.69	2,100,000.00	276,960.25	2,097,178.28	1.939E-3	5.47	4,066.7	1.939E-3	1.338E-3
Lead	0.01	3,200,000.00	288,577.67	3,197,059.92	6.842E-4	2.01	2,187.54	6.842E-4	6.842E-6
Mercury	0.95	42,000.00	4,322.53	41,955.96	1.018E-4	0	4.27	1.018E-4	9.670E-5
HPAHs	0.05	240,000.00	4,346,388.50	195,718.24	5.567E-4	24.65	108.95	5.567E-4	2.783E-5
LPAHs	0.01	170,000.00	3,012,835.14	139,304.72	5.370E-4	16.48	74.81	5.370E-4	5.370E-6
PCBs	12.87	26,000.00	20,066.54	25,795.56	0	0	0	0	0
DDx	1.37	27,000.00	2,516.93	26,974.36	0	0	0	0	0
Dieldrin	0.13	390.00	1.27	389.99	0	0	0	0	0
Dioxins_Furans	83.92	38.00	3,729.82	0.00	0	0	0	0	0

Facility Bypass Information

Garfield Molding Company, Inc.	10 Midland Avenue	Wallington	NJ	07057
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Item	Bypass Name	Bypass Type	Time %	Flow %	Bypass Notes
1	Yantacaw	Bypass	2.32%	100.00%	

Discharge Calcs	POTW Discharge Information	COMMENTS/NOTES
	gal discharged per day/week/month	No information on Discharges or Flows
	# hours/per day discharged	Connection to PVSC in 1917, but flows to Saddle River
	#days/week discharged	
	#weeks/yr discharged	
-	calc gal/yr discharge	
	Yr Ops started	
	Yr Ops ceased	
1	calc #yrs facility operated	
Copper (Cu)		
1	#yrs facility discharged	
0.0365	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Lead (Pb)		
1	#yrs facility discharged	
0.0304	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Mercury (Hg)		
1	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
HPAHs		
1	#yrs facility discharged	
-	calc mg/L O&G	
10%	% O&G that is considered PAHs	
50%	% COC in O&G considered as PAHs	
-	calc mg/L HPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
LPAHs		
1	#yrs facility discharged	
-	calc mg/L O&G	
10%	% O&G that is considered PAHs	
50%	% COC in O&G considered as PAHs	
-	calc mg/L LPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
PCBs		
-1928	#yrs facility discharged within PCBs Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
DDx		
-1939	#yrs facility discharged within DDx Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dieldrin		
-1949	#yrs facility discharged within Dieldrin Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxins/Furans		
1	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4-D		
-1945	#yrs facility discharged within 2,4-D Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,5-T		
-1944	#yrs facility discharged within 2,4,5-T Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,6-TCP		
-1949	#yrs facility discharged within 2,4,6-TCP Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Summary DMassCOC for POTW:		
-	kg Copper	
-	kg Lead	
-	kg Mercury	
-	kg HPAHs	
-	kg LPAHs	
-	kg PCBs	
-	kg DDx	
-	kg Dieldrin	
-	kg Dioxins/Furans	

Discharge Calcs	Direct Discharge Information	COMMENTS/NOTES
	# hours/day discharged	Direct Discharge to Saddle River, through PVSC sewer system?
	# days/week discharged	NJPDES Permit NJ0027146 (PAS-00102810)
	# weeks/yr discharged	Based on Franklin Burlington
6,000,000	# gals/yr directly discharged	
		Credit for NJPDES Permit for TPH discharge limit of 15 mg/l
4.08	ft; 30yr average annual precipitation per Rutgers information	
	acres	
43,560	ft2 per acre	
1917	Yr Ops started	
2014	Yr Ops ceased	
97	calc #yrs facility operated	
Copper (Cu)		
97	#yrs facility discharged	From Franklin Burlington
0.0365	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
80.33	calc kg COC discharged	
Lead (Pb)		
97	#yrs facility discharged	From Franklin Burlington
0.0304	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
67.07	calc kg COC discharged	
Mercury (Hg)		
97	#yrs facility discharged	From Franklin Burlington
-	calc mg/L COC discharged	Non Detect
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
HPAHs		
97	#yrs facility discharged	From Franklin Burlington
1.5000	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
3,304.3050	calc kg COC discharged	
LPAHs		
97	#yrs facility discharged	From Franklin Burlington
1.0000	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
2,202.8700	calc kg COC discharged	
PCBs		
49	#yrs facility discharged within PCBs Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
DDx		
33	#yrs facility discharged within DDx Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dieldrin		
38	#yrs facility discharged within Dieldrin Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxins/Furans		
97	#yrs facility discharged	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4-D		
69	#yrs facility discharged within 2,4-D Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,5-T		
41	#yrs facility discharged within 2,4,5-T Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,6-TCP		
26	#yrs facility discharged within 2,4,6-TCP Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Summary DMassCOC for Direct Discharge:		
80.33	kg Copper	
67.07	kg Lead	
-	kg Mercury	
2,418.62	kg HPAHs	
1,612.41	kg LPAHs	
-	kg PCBs	
-	kg DDx	
-	kg Dieldrin	
-	kg Dioxins/Furans	

Discharge Calcs	Direct Discharge Information	ASSUMPTIONS, REFERENCES	COMMENTS/NOTES
	4.08 FEET/YEAR AVERAGE PRECIPITATION	Long term average annual precipitation includes floods and hurricane events occurring over time.	Data from Rutgers University.
	3.43 ACRES - TOTAL SITE AREA (acres)	FDR and PAS-00102867, PAS-00123366	
	2.0 ACRES - AFFECTED AREA	Estimation based on Google Earth	
	4,046.86 METERS ² /ACRE		
	8,094 METERS ² (AFFECTED AREA)		
	0.0001 METERS/YEAR (ERODED SOIL THICKNESS)	For this estimate, used a surface soil erosion rate of 0.1 mm/year, or 0.004 inches/year.	
	1 METERS ³ /YEAR (ERODED SOIL VOLUME)	VOLUME/YEAR DISCHARGED	
	1917 Year site operations began	PAS-00123364	
	2014 Year site processing and storage operations ceased	PAS-00123364	
	97 NUMBER YEARS DISCHARGE		
	79 METERS ³ (TOTAL SOIL VOLUME DISCHARGED OVER TIME)		
	2,251 KG/M ³ SOIL DENSITY	Fill underlain by fine to coarse well sorted sands/coarse gravely sands/fine sands and silt (PAS-00102913). Bulk density range 2002 KG/M ³ to 2499 KG/M ³ , so use average. (http://structx.com/Soil_Properties_002.html)	
	176,685 KILOGRAMS (TOTAL SOIL DISCHARGED OVER TIME)		
		Site is partially located on historic fill (FDR, pg. 9)	
Copper (Cu)	97 YEARS DISCHARGED		
	2585 MG/KG (MAX CONCENTRATION)	Maximum concentration in soil at VE-1 (24-30") (PAS-00102887 and PAS-00102889)	
	0.000001 kg per mg (Merck Index)		
	457 KILOGRAMS DISCHARGED		
Lead (Pb)	97 YEARS DISCHARGED		
	738 MG/KG (AVERAGE CONCENTRATION)	Max concentration in soil at VE-3 (24-30") (PAS-00102889)	
	0.000001 kg per mg (Merck Index)		
	130 KILOGRAMS DISCHARGED		
Mercury (Hg)	97 YEARS DISCHARGED		
	2.5 MG/KG (MAX CONCENTRATION)	Max concentration in soil at VE-3 (24-30") (PAS-00102889)	
	0.000001 kg per mg (Merck Index)		
	0 KILOGRAMS DISCHARGED		
PAHs (listed in Benzo(a)pyrene Equivalent conversion table)		Total concentration of PAH compounds for Benzo(a)pyrene Equivalent https://floridadep.gov/waste/petroleum-restoration/documents/benzo-pyrene-equivalents-conversion-table-one-sample.	
	97 YEARS DISCHARGED		
	4.6 MG/KG (TOTAL PAH AVERAGE CONCENTRATION)	Sum of Benzo(a)pyrene Equivalent conversion concentrations using maximum concentrations (FDR Tables, page 10; PAS-00102888-892)	
	0.000001 kg per mg (Merck Index)		
	1 KILOGRAMS DISCHARGED		
PAHs (others detected)	97 YEARS DISCHARGED		
	30.30 MG/KG (TOTAL PAH MAX CONCENTRATION)	Other PAHs = Benzo (a) pyrene, Phenanthrene, Flouranthene, Pyrene (FDR Tables; PAS-0010288-892)	
	0.000001 kg per mg (Merck Index)		
	5 KILOGRAMS DISCHARGED		
PCBs	84 YEARS DISCHARGED	PCB sample result at T-W-5 (PAS-00102882); years reflect a 1930 start date for PCBs.	
	0 MG/KG (MAX OF REPORTED CONCENTRATIONS)	PCB concentration relected as 0 mg/kg because the only detection was from a sample taken at 9 ft bgs below a UST, which is too far below ground surface for this calculation. (FDR p 15, PAS-00102882)	
	0.000001 kg per mg (Merck Index)		
	0 KILOGRAMS DISCHARGED		

Contaminant	Concentration (mg/kg)	Toxic Equivalency Factor	Benzo(a)pyrene Equivalents
Benzo(a)pyrene	3.800	1.0	3.8000
Benzo(a)anthracene	2.800	0.1	0.2800
Benzo(b)fluoranthene	5.400	0.1	0.5400
Benzo(k)fluoranthene	2.100	0.01	0.0210
Chrysene	3.400	0.001	0.0034
Dibenz(a,h)anthracene	0.000	1.0	0.0000
Indeno(1,2,3-cd)pyrene	0.000	0.1	0.0000

DE Residential = 0.1 mg/kg; DE Industrial = 0.7 mg/kg

Total Benzo(a)pyrene Equivalents =

4.6

DDx	YEARS DISCHARGED within DDx Timeline	None
	MG/KG (MAX CONCENTRATION)	
	3.785 L per gallon (Merck Index)	
	0.000001 kg per mg (Merck Index)	
	0 KILOGRAMS DISCHARGED	
Dieldrin	0 YEARS DISCHARGED within Dieldrin Timeline	None
	MG/KG (MAX CONCENTRATION)	
	3.785 L per gallon (Merck Index)	
	0.000001 kg per mg (Merck Index)	
	0 KILOGRAMS DISCHARGED	
Dioxins/Furans	YEARS DISCHARGED	None
	MG/KG (MAX CONCENTRATION)	
	0.000001 kg per mg (Merck Index)	
	0 calc kg COC discharged	
SUMMARY CMASS ESTIMATES:		
	456.73 kg Copper	
	130.39 kg Lead	
	0.44 kg Mercury	
	0.82 kg PAHs (Benzo(a)pyrene Equivalent)	
	5.35 kg PAHs (Other)	
	0.00 kg PCBs	
	0.00 kg DDx	
	0.00 kg Dieldrin	
	0.00 kg Dioxins/Furans	
593.74 MASS (KG) DISCHARGED FROM SURFACE SOIL		

Discharge Calcs	Direct Discharge Information		NOTES, COMMENTS, REFERENCES
	4.08 FEET/YEAR AVERAGE PRECIPITATION per Rutgers Univ.		Long term average annual precipitation includes floods and hurricane events occurring over time.
	0 ACRES - TOTAL SITE AREA (acres)		Eight catch basins sampled for sediment (PAS-001028894-95)
	0.00 ACRES - AFFECTED AREA		Assume catch basin size as 4' x 5'
	0.00 METERS ² /ACRE		Assume 3 inches deep sediment
	15 METERS ² (AFFECTED AREA)		Each catch basin = 20 ft ² = 1.858 m ²
	0.0010 METERS/YEAR (ERODED SOIL THICKNESS)		1.858 m ² x 8 = 14.86 m ²
	0.015 METERS ³ /YEAR (ERODED SOIL VOLUME)		changed erosion rate to 0.1 mm/yr.
	1917 Year site operations began		PAS-00123364
	2014 Year site processing and storage operations ceased		PAS-00123364
	97 NUMBER YEARS DISCHARGE		
	1 METERS ³ (TOTAL SOIL VOLUME DISCHARGED OVER TIME)		
	1,746 KG/M ³ SOIL DENSITY		Assume organic silts. Bulk density range 1394 KG/M ³ to 2098 KG/M ³ , so use average. (http://structx.com/Soil_Properties_002.html)
	2,517 KILOGRAMS (TOTAL WT OF SOIL AFFECTED OVER TIME)		
	Copper (Cu)		
	0 YEARS DISCHARGED		
	MG/KG (MAX CONCENTRATION)		
	0.000001 kg per mg (Merck Index)		
	0 KILOGRAMS DISCHARGED		
	Lead (Pb)		
0 YEARS DISCHARGED			
MG/KG (MAX CONCENTRATION)			
0.000001 kg per mg (Merck Index)			
0 KILOGRAMS DISCHARGED			
Mercury (Hg)			
0 YEARS DISCHARGED			
MG/KG (MAX CONCENTRATION)			
0.000001 kg per mg (Merck Index)			
0 KILOGRAMS DISCHARGED			
PAHs (listed in Benzo(a)pyrene Equivalent conversion table)			
97 YEARS DISCHARGED		Total concentration of PAH compounds for Benzo(a)pyrene Equivalent https://floridadep.gov/waste/petroleum-restoration/documents/benzo-pyrene-equivalents-conversion-table-one-sample .	
49.896 MG/KG (TOTAL PAH MAX CONCENTRATION)		Sum of Benzo(a)pyrene Equivalent conversion concentrations using maximum concentrations (FDR Table page 17; PAS-001028894-95)	
0.000001 kg per mg (Merck Index)			
0.126 KILOGRAMS DISCHARGED			
PAHs (others detected)			
97 YEARS DISCHARGED		Other PAHs = Dibenzfuran, Napthalene, Acenaphthalene, Flourene, Phenanthrene, Anthracene, Flouranthene, Pyrene (FDR Table page 17)	
92.3 MG/KG (TOTAL PAH MAX CONCENTRATION)			
0.000001 kg per mg (Merck Index)			
0.232 KILOGRAMS DISCHARGED			
PCBs			
0 YEARS DISCHARGED within PCBs Timeline			
MG/KG (MAX OF REPORTED CONCENTRATIONS)			
0.000001 kg per mg (Merck Index)			
0 KILOGRAMS DISCHARGED			
DDx			
0 YEARS DISCHARGED within DDx Timeline			
MG/KG (CONCENTRATION)			
3.785 L per gallon (Merck Index)			
0.000001 kg per mg (Merck Index)			
0 KILOGRAMS DISCHARGED			

Eight catch basins sampled for sediment (PAS-001028894-95)
Assume catch basin size as 4' x 5'
Assume 3 inches deep sediment

Each catch basin = 20 ft2 = 1.858 m2
1.858 m2 x 8 = 14.86 m2

changed erosion rate to 0.1 mm/yr.

PAS-00123364
PAS-00123364

Assume organic silts. Bulk density range 1394 KG/M³ to 2098 KG/M³, so use average. (http://structx.com/Soil_Properties_002.html)

Total concentration of PAH compounds for Benzo(a)pyrene Equivalent
<https://floridadep.gov/waste/petroleum-restoration/documents/benzo-pyrene-equivalents-conversion-table-one-sample>.

Sum of Benzo(a)pyrene Equivalent conversion concentrations using maximum concentrations (FDR Table page 17; PAS-001028894-95)

Other PAHs = Dibenzfuran, Napthalene, Acenaphthalene, Flourene, Phenanthrene, Anthracene, Flouranthene, Pyrene (FDR Table page 17)

Contaminant	Concentration (mg/kg)	Toxic Equivalency Factor	Benzo(a)pyrene Equivalents
Benzo(a)pyrene	27.000	1.0	27.0000
Benzo(a)anthracene	19.000	0.1	1.9000
Benzo(b)fluoranthene	34.000	0.1	3.4000
Benzo(k)fluoranthene	12.000	0.01	0.1200
Chrysene	26.000	0.001	0.0260
Dibenz(a,h)anthracene	17.000	1.0	17.0000
Indeno(1,2,3-cd)pyrene	4.500	0.1	0.4500
DE Residential = 0.1 mg/kg; DE Industrial = 0.7 mg/kg			
Total Benzo(a)pyrene Equivalents =			49.9

Dieldrin	
	0 YEARS DISCHARGED within Dieldrin Timeline
	MG/KG (CONCENTRATION)
	3.785 L per gallon (Merck Index)
	0.000001 kg per mg (Merck Index)
	0 KILOGRAMS DISCHARGED
Dioxins/Furans	
	0 YEARS DISCHARGED
	MG/KG (CONCENTRATION)
	0.000001 kg per mg (Merck Index)
	calc kg COC discharged
SUMMARY CMASS ESTIMATES:	
	0.00 kg Copper
	0.00 kg Lead
	0.00 kg Mercury
	0.13 kg PAHs (Benzo(a)pyrene Equivalent)
	0.23 kg PAHs (Other)
	0.00 kg PCBs
	0.00 kg DDx
	0.00 kg Dieldrin
	0.00 kg Dioxins/Furans
0.36 MASS (KG) DISCHARGED BY OVERLAND FLOW	

Facility Base Scores, Culpability Factor, Cooperation Factor and Adjusted Base Scores - Protocol Calculation

Garfield Molding Company, Inc.

10 Midland Avenue			Wallington	NJ	07057				
Facility BS	CUF	CUF_Category	CUF_NOTES			COF	COF_NOTES	Facillty Adjusted BS	
8.011E-6	5.0%	Occasional Noncompliance	On July 2, 1974, PVSC wrote to Garfield confirming that their boiler blowdown was polluting (PAS-00102945). This violation was eliminated August 1974 (PAS-00102945). Several unpermitted discharges and other violations of the NJPDES-discharge permit were noted to have occurred during the historical operations, as well as deficiencies of the facility (e.g., spreading waste oil on the unpaved driveways to control dust) (PAS-00102947-9). There were several drum storage areas noted. The floor of Building 16 was heavily stained and a portion of the roof was missing.			-20.0%	-20% CPG/SPG member - Continuous provision of funding and participation in PRP Group(s) actions to cooperate with governmental/regulatory entities to address environmental or public harm created by own activities	6.809E-6	
								AP_ABS	6.809E-6

Garfield Molding Company, Inc.

10 Midland Avenue	Wallington	NJ	07057
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Facility BS	CUF	CUF_Category	CUF_NOTES	COF	COF_NOTES	Facillty Adjusted BS
1.475E-3	5.0%	Occasional Noncompliance	On July 2, 1974, PVSC wrote to Garfield confirming that their boiler blowdown was polluting (PAS-00102945). This violation was eliminated August 1974 (PAS-00102945). Several unpermitted discharges and other violations of the NJPDES-discharge permit were noted to have occurred during the historical operations, as well as deficiencies of the facility (e.g., spreading waste oil on the unpaved driveways to control dust) (PAS-00102947-9). There were several drum storage areas noted. The floor of Building 16 was heavily stained and a portion of the roof was missing.	-20.0%	-20% CPG/SPG member - Continuous provision of funding and participation in PRP Group(s) actions to cooperate with governmental/regulatory entities to address environmental or public harm created by own activities	1.254E-3

AP_ABS	1.254E-3
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